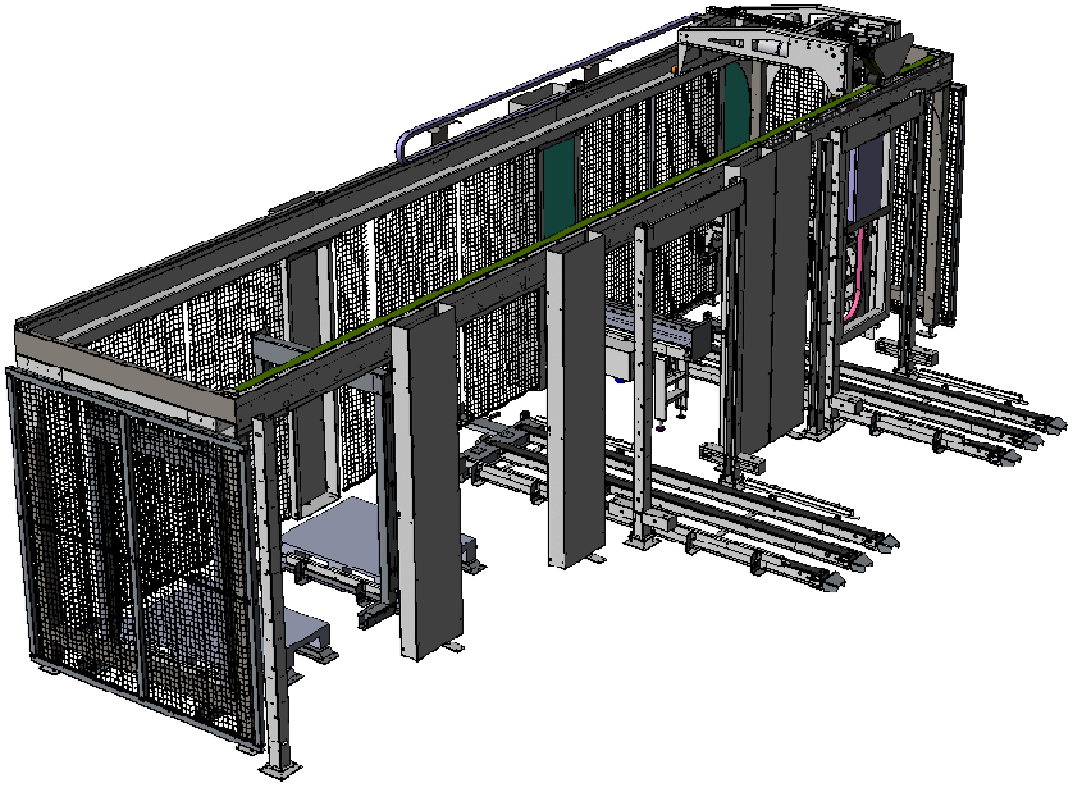

USER MANUAL
PALLET LOADER V2

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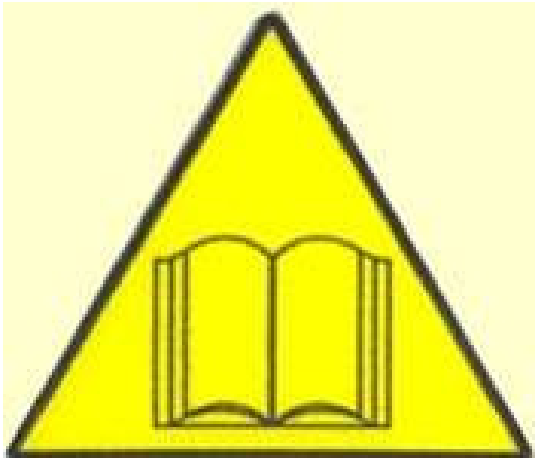
INTRODUCTION



CAUTION:

This manual must be read by or to each person, before that person operates, cleans, repairs, supervises the operation of, or uses this machine in any way.

CAUCION:

Este manual debe ser leido por a cada persona antes de comenzar a operar, limpiar, reparar, supervisar la operación de, o utilizar esta maquina de cualquier manera.

ATTENTION:

Ce manuel doit être lu par, ou a, toute personne avant qu'elle ne mette en route, nettoie, répare, supervise le fonctionnement ou utilise cette machine, de quelque manière que ce soit.

VORSICHT:

Jeder, der diese Maschine bedienen, reinigen, reparieren, überwachen oder auf irgendeine Weise benutzen soll, muß vorher diese Hinweise lesen oder vorgelesen bekommen.

ATTENTIE:

Een ieder, die deze machine bedient, reinigt, repareert, controleert of op enige andere wijze gebruiken zal, dient vooraf deze bedieningsvoorschriften te lezen.

CAUTELA:

Il presente manuale deve essere letto da o ad ogni membro del personale prima che tale persona operi, pulisca, ripari, diriga il funzionamento o utilizzi la macchina in qualsiasi modo.

LIABILITY

Prinzen BV cannot be held responsible for any costs, damage or personal injury if its system is not used in accordance with the instructions as described in this manual.
The information provided in this manual is valid for the standard design of the system. Parts of your system may differ from this standard design.
Since Prinzen BV is constantly improving its systems it may be possible that there are small differences between your system and this manual.
Though this manual has been put together with the utmost care, Prinzen BV cannot accept any responsibility for costs, damage or personal injury arising from any fault and/or incompleteness in the content of this document.

GENERAL

This manual contains important information concerning safety, operation, adjustment, maintenance, cleaning and repair of the Prinzen BV system. For uncomplicated functioning of the system, read this manual carefully and work according to the directions in this manual.
Beside the design and the used materials also the operation and maintenance have great impact on the functioning, the life span and the operational costs of our system. You, as the owner of the system, are responsible for the execution of maintenance according to the directions and the intervals in this manual.
This manual will help you to gain knowledge to use the system as it should be used: Correct operated and excellent maintained.

A Prinzen BV system meets the demands, mentioned in the European machine guideline (CE).

CE

COPYRIGHT

GENERAL

This manual contains important information concerning safety, operation, cleaning, maintenance and breakdown remedies.
At all time this manual must be accessible for all personnel working with the system. Keep it in a permanent place, close to the system. When the manual is lost or damaged, order a new copy as soon as possible.
The user of the system should read and understand the total user manual before operating, cleaning, maintaining and repairing the system.
Never change the sequence of procedures as described in this manual.

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read this chapter and chapter Safety.

LEGAL REGULATIONS

- All safety directions stated in this manual must be observed.
- Along with the safety regulations in this chapter the instructions of the qualified trade organization of your country must be observed to avoid accidents.
- Before starting to repair or maintain the machine always consult your safety manager to discuss if a work permit is required for this job.
- All safety devices in the machine and the safety indications mentioned in this manual are conditions to control the machine safely. The owner and his qualified personnel are in the end the ones responsible for the safe use of the machine.
- The owner is responsible for the ability of the qualified personnel to perform its duties according to the safety measures.
- Technical changes, which influence the safety working of the machine, may only be executed by the service department of Prinzen.
- Do not change controls, and/or PLC programs, without written permission from Prinzen because this may affect the safety of the machine.
- Only use genuine Prinzen parts or CE-certified parts for replacement.
- Prinzen cannot be held responsible for any consequential damages to the system or other installations that were caused by technical changes, unprofessional maintenance and repairs on our system, which were executed by the customer.
- Warranty becomes invalid when consequential damages to the system, caused by technical changes, unprofessional maintenance and repairs, were executed by the customer.

	**DANGER!** Failure to obey legal regulations may result in permanent personal injury or death.
	**ATTENTION!** Failure to obey legal regulations may result in damage to the system.

HOW TO USE THIS MANUAL?

The manual is constructed to provide a maximum amount of information with a minimum amount of searching. The key to easy reference is the Table of contents. Familiarize yourself with it and you won't have any trouble locating information from any area of machine.

WHO SHOULD USE THIS MANUAL?

Owner:
The owner (contractor, concern) is the person that owns or hires the machine and puts this machine into production. The owner must take care that the users of the system will read the manual.

Operator:
The operator is the person who operates the system as ordered by the owner. The operator must read the chapters Introduction, Safety, Machine description, Operation, Cleaning.

Professional:
A professional is someone who can assess the duties appointed to him on account of his education, knowledge and experience and who can assess the dangers attached, thereby avoiding these dangers.

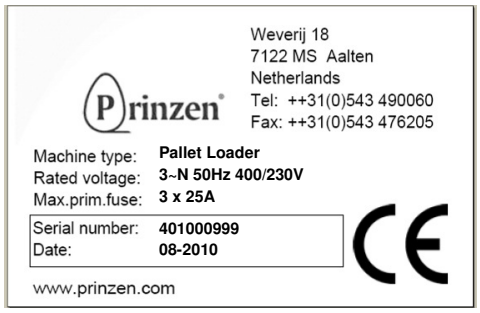
Maintenance engineer:
The maintenance engineer is the professional who is deemed qualified by the owner to perform certain duties. The qualification only applies to those assigned duties. The maintenance engineer must read the total manual.

MACHINE INFORMATION

Machine type:	Pallet loader V2
Machine serial number:	
Manual revision:	02 (October 2011)

SERIAL NUMBER

Each machine has a unique serial number printed on the machine tag, which can be found in the electrical cabinet. Note down this serial number to have it available when contacting the Prinzen service department.



SYMBOLS

Symbols are used in the manual when special attention/caution is required while working on the system. The special symbols and their meaning are depicted in the below table.

Symbol:	Meaning:
	**DANGER!** This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury or death.
	**CAUTION!** This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury.
	**ATTENTION!** This symbol is used when instructions should be followed to the letter. If not they may cause damage to the system.
	**NOTE!** This symbol advises to use edible products and to work in a hygienically way. Disregarding this advice may cause illness.
	**TIP!** This symbol is used as a helpful hint to simplify the execution of certain tasks.

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EC-DECLARATION OF CONFORMITY FOR MACHINERY

Concerning the machinery directives:

Prinzen B.V.
Weverij 18
7122 MS AALTEN
The Netherlands

1 Herewith declares that we are the manufacturer of the egg-packing machine on which this declaration applies:

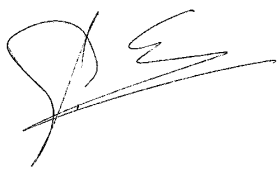
Brand:	Prinzen
Type:	Pallet Loader
Serial number:	

2 The machine is developed in compliance with the demands of the machinery directive 2006/42/EC (most recent).

3 The machine meets the provisions of the following directives:
The low voltage equipment directive 2006/95/EC (most recent).
The EMC-directive 2004/108/EC (most recent).

4 The machine is developed and constructed according the following standard:
NEN-EN-IEC 60204-1: 2006 Electrical equipment of industrial machines.

Signed in:	Aalten
Date:	22-09-2011



Signed by: G.J. van Eerden

1. SAFETY

GENERAL

Only persons meeting the following requirements are authorized to work with the system. These persons should be:
- Skilled and specifically trained for their duties.
- Familiar with the contents of this manual.
- Familiar with the locations of the emergency stop buttons and other safety devices.
- 18 years old or above.
- Familiar with the national and regional regulations regarding safety.

These persons should have reached the minimum legal age required to perform this work.
These persons are NOT under influence of any drug, medicine or alcoholic drink.

DANGER!
Keep children and incompetent persons away from the system!

The system is only to be used for the purpose it was designed for. See the chapter Machine description for details.

SAFETY REGULATIONS

Do not use the system when safety devices have been removed. This system may contain sharp edged parts, moving parts and rotating parts.
When protective covers are removed, sharp edges and pinch points may be exposed. Use extreme caution and avoid touching or striking these areas with your hands or body because they may cause injuries.

Do not enter parts of your body or objects into openings in the system. This may lead to serious physical injury or damage to the system. It is dangerous to be in, on or under the system while it is operational.

Loosely hanging clothing, wide sleeved clothing, ties, chains or rings are prohibited. Long hair should be worn tied back.

Make sure that there is sufficient light around the machine.

Do not touch or come near moving or rotating parts. Physical contact with these parts is dangerous.

Do not stand or walk on any of the system parts.

Do not work alone on the system. At least one other person should be present

Before starting to clean, maintain or inspect the machine or before remedying breakdowns follow the steps mentioned below:
- Switch off the machine and secure it against accidental switching on.
- Post “Do not switch on” warning sign on the main switch:
- Operate the nearest emergency stop button.
- Make sure that no components are moving.

Before switching on the machine, you must check the following:
- All safety devices are in place and are functioning.
- No other persons are in, underneath or above the system.
- No tools or objects are in the system.
- No other persons are at risk.

Do not use water to clean electricity cabinets and other electronic components.

For save and easy operation keep the area and floor around the machine clean, free of oil, grease or obstacles. Remove superfluous fat and greasing oil after greasing duties.

When an extension cable is used for power supply, make sure that the cable diameter in relation to the length of the cable is correct. Make sure the cable is completely unrolled

Manual activation of safety switches is forbidden.
When the safety devices are put out of operation, the machine must first be switched off and secured against accidental switching on.

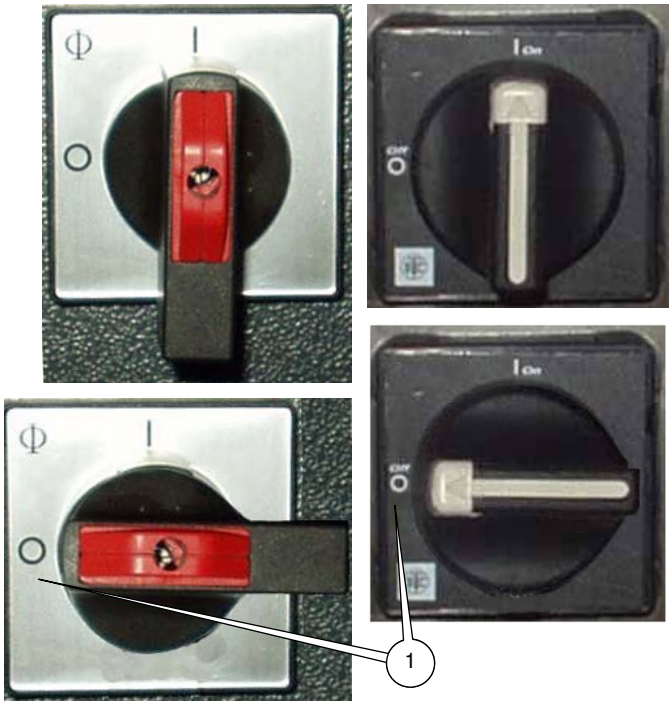
Work inside the electrical cabinet may only be undertaken by skilled personnel like Prinzen service engineers or its dealer’s service engineers.

Always switch off the main switch before opening electrical cabinets.

After switching off the main switch, parts inside the electrical cabinet remain live for approximately 1 minute. The frequency inverters may hold a high voltage charge during this time. Do not touch parts inside the electrical cabinet as long as displays of frequency inverters are on.

Several parts inside the electrical cabinet maintain voltage even when the main switch is turned off (main switch, main power supply, terminals for egg collecting belts, etcetera).

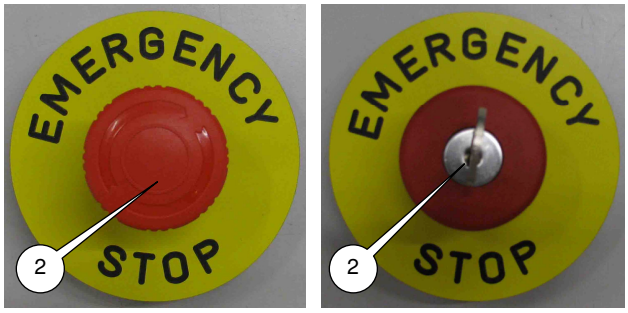
	**DANGER!** Failure to obey safety regulations may result in permanent personal injury or death.
	**ATTENTION!** Failure to obey safety regulations may result in damage to the system.



SAFETY PROVISIONS

Before operating the machine the safety devices must be checked for correct functioning.
Repair or replace safety devices before using the system if they do not work properly.
Never rely solely on safety devices. Always switch off the system and lock up the power source (1) before working on the machine.

Safety devices are:
2. Emergency stop buttons
3. Lockable doors
4. Protective covers
5. Safety screens

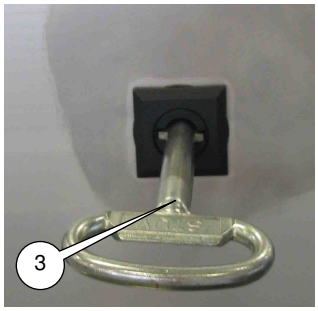


EMERGENCY STOP BUTTON

To stop the machine in case of an emergency, the system has one or more emergency stop buttons (2).
Only use the emergency stop button in case of an emergency. When the emergency stop button is pressed, the system stops immediately. The button stays mechanically locked so the machine cannot start until it is considered safe to do so. Release the emergency stop button by turning it clockwise.
Do not release the emergency stop button when it is not certain why and by whom it was pressed.
Personnel working with the system must know the positions of the emergency stop buttons.

One of the emergency buttons is equipped with a safety key. Releasing this emergency button is only possible with this key.
Before entering the system always push this emergency button and keep the safety key in your possession while you are inside the system. It prevents restart of the system by other persons.

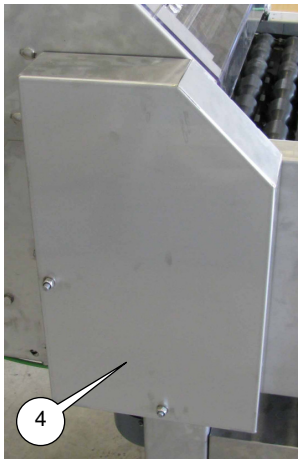
	DANGER! Push the safety key emergency button before you go inside the pallet loader. Keep the safety key in your pocket while you are inside the pallet loader!
	DANGER! Make sure it is not possible to start the system when you are inside the pallet loader!

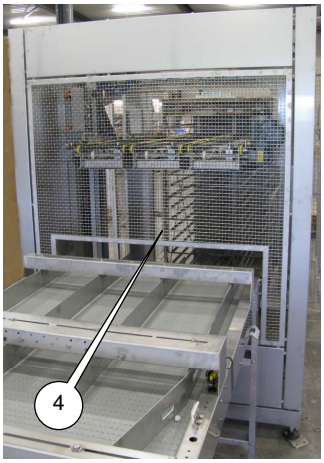


LOCKABLE DOOR

Lockable doors are doors that can only be opened with a key (3). The key should only be in possession of a supervisor.

DANGER!
Lockable doors safeguard dangerous machine areas. These doors are of utmost importance to operate the machine safely. Never operate the machine when doors are open or not locked because serious injury or death may occur!

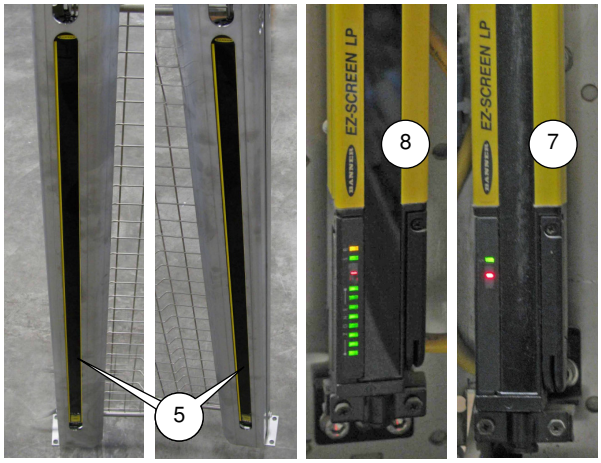




PROTECTIVE COVER

Protective covers (4) shield off dangerous moving parts. These covers cannot be removed without tools and should be attached to the system before starting to use it.

DANGER!
Protective covers safeguard dangerous machine areas. These covers are of utmost importance to operate the machine safely. Never operate the machine when protective covers are removed because serious injury or death may occur!



SAFETY SCREEN

In systems where easy access to openings is necessary a safety screen (5) is provided to stop the system immediately when it is interrupted.
A safety screen consists of a transmitter (7), a receiver (8) and occasionally mirrors. When the safety screen is uninterrupted, the LED's on the receiver are green as shown in the alongside picture.

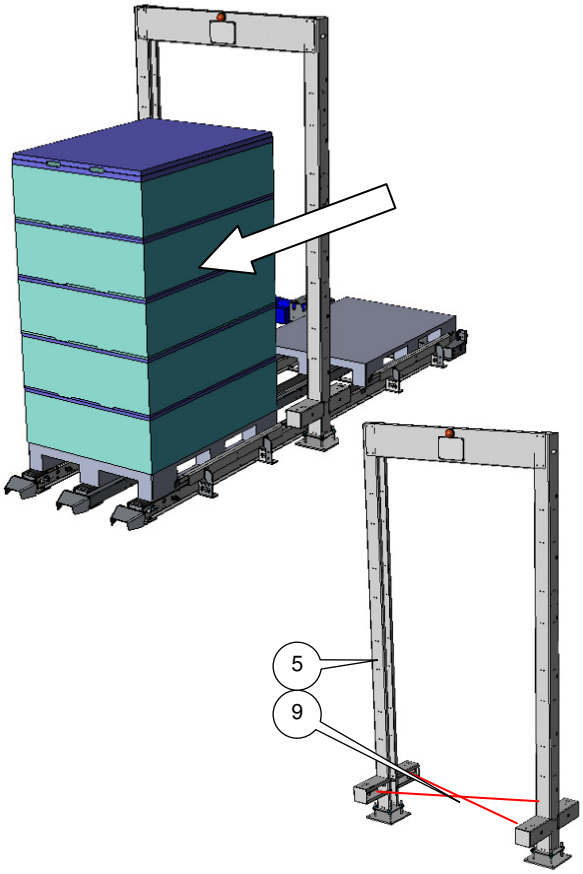
Interrupting the safety screen stops the fork carrier/fork support and the pallet outfeed conveyors immediately.
When the pallet outfeed conveyors are running in the manual mode, they remain running when the safety screen is interrupted.

After interrupting a safety screen and after switching the power ON it is necessary to reset the safety screen. This is only possible with the local (flashing) reset button.

Make sure the safety screen remains interrupted when you are supplying pallets or dividers to the pallet stock or divider stock. When you are completely into the system the safety screen does not detect this and other persons are able to start the system.

When more than one safety screen is present, the controller knows which safety screen is interrupted.
When entering a part of the system through a safety screen, only adapt the part of the system that is protected by this particular safety screen, because only this area is scanned after resetting this safety screen.

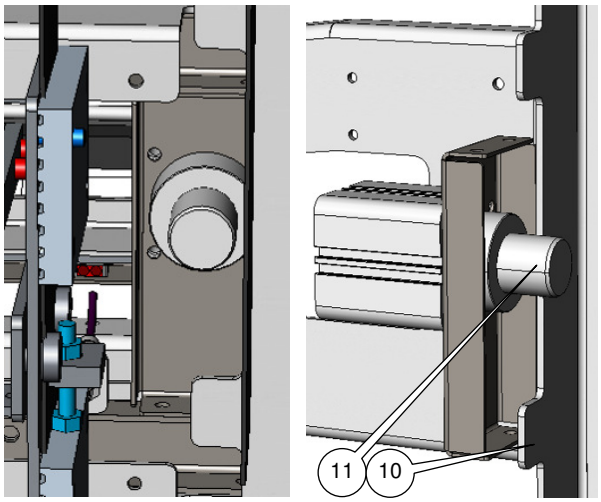
	**DANGER!** Make sure it is not possible to start the system when you are inside the system.
	**DANGER!** Make sure nobody is present inside the pallet loader before resetting an interrupted safety screen!
	**CAUTION!** Interrupting the safety screen does not stop the conveyors.
	**TIP!** Never use the safety screen for a normal production stop. This may cause start-up problems.



MUTING SAFETY SCREEN

Crosswise placed sensors/reflectors (9) are able to overrule (mute) the safety screens when both sensors are interrupted at the same time. This allows pallets to exit the pallet loader without activating the emergency circuit.

	DANGER! Make sure it is not possible to start the system when you are inside the pallet loader!
	DANGER! Make sure the safety catch is IN before entering the pallet loader.



SAFETY CATCH

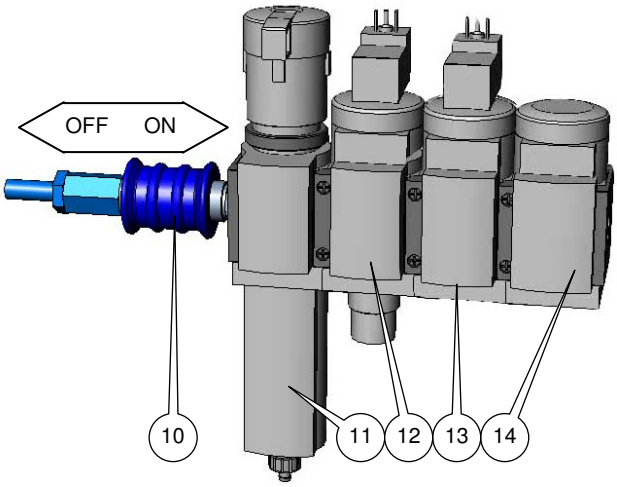
In systems with a heavy vertical moving unit like for example the fork support, a safety catch cylinder is provided.
A strip with protrusions (10) prevents the downward movement of the lift when the machine is stopped. Whenever a safety device is not released or when the system is powered OFF, the piston (11) of the spring returned safety catch cylinder moves outwards in between the protrusions in the strip. A sensor on the cylinder detects the safety catch cylinder IN position. When this sensor is not ON, the lift will not move and the message “Safety latch vertical lift not in” appears on the touchpanel.

	DANGER! Whenever it is necessary to work in the area where the lift moves up and down, make sure the safety catch is OUT.
	DANGER! Make sure the fork support is in its bottom position before entering the system. Never sit, crawl or walk underneath the fork support.

SAFETY PLC

All safety devices (emergency buttons, safety switches, trolley switches and safety screens) are connected to the safety PLC.

After switching ON the system, first the touchpanel has to start up. It takes around 90 seconds before the start-up screen appears. Then it takes another 30 seconds to start up the safety PLC.
Because of this wait at least 2 minutes after switching ON the system before trying to run it. When the start-up screen appears wait at least 30 seconds before trying to reset any alarms.

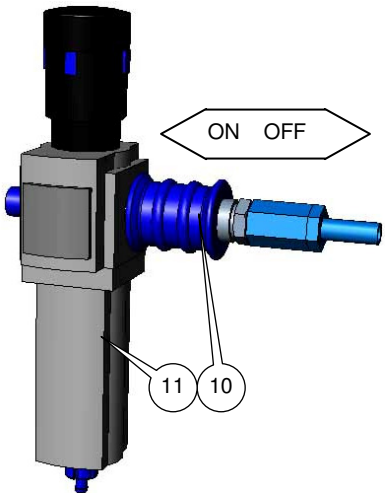


AIR PREPARATION

The system may be equipped with one or more air preparation units. The following parts may be present in these units:
10. Manual ON/OFF switch
11. Air pressure regulator
12. Electrical start-up valve
13. Pressure sensor
14. Slow starter

With the manual ON/OFF switch it is possible to switch the air supply ON or OFF. Push the switch towards the regulator to switch the air supply ON. Push the switch away from the regulator to switch the air supply OFF.

DANGER!
Switch the air supply OFF before starting to perform activities on the system.

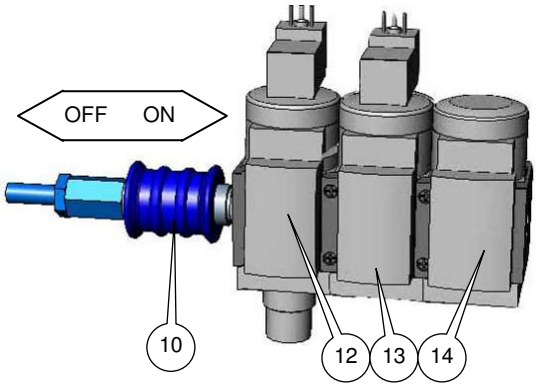


With the air pressure regulator it is possible to adjust the required air pressure for the system.

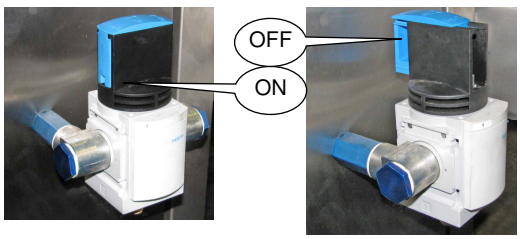
The electrical start-up valve switches the air supply OFF during an emergency stop.

The pressure sensor is used by the controller to verify the air pressure.

The soft starter slowly builds up the air pressure towards the air cylinders after resetting the system to prevent unexpected fast movements of air cylinders.



AIR SUPPLY SWITCH



With the alongside depicted air supply switch it is possible to switch the air supply ON or OFF. In the OFF position it is possible to lock the switch with a padlock. During maintenance activities switch the air supply OFF and lock it with a padlock.

SAFETY INSPECTION PROCEDURE

Before starting the machine all protective covers must be in place and doors should be locked. The emergency stop buttons and safety screens should be operating. Trained personnel must check safety devices on a daily basis to assure proper operation.

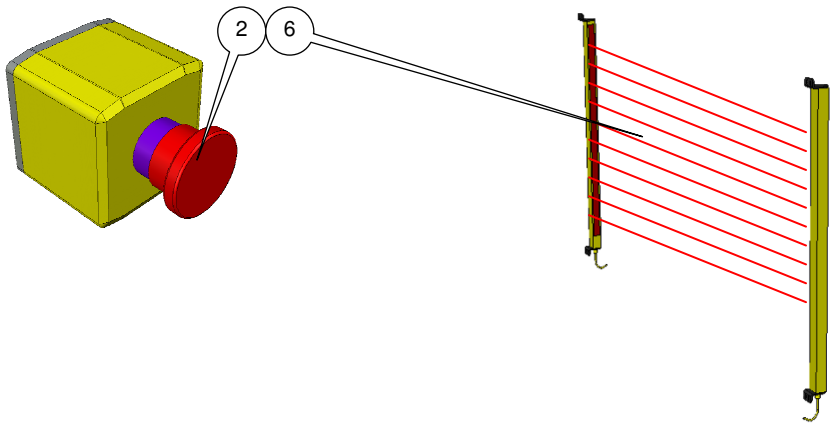
Check emergency stop buttons (2):

1. Start and stop the system.
2. Wait until the system has completely stopped and push an emergency stop button.
3. Push the start button, the machine should not start.
4. Release the emergency stop button and reset the emergency circuit.
5. Repeat the above steps 2, 3 and 4 for all emergency stop buttons.
6. Make sure that the machine does not start when any emergency stop button is pressed.

Check safety screens (6):

1. Start and stop the system.
2. Wait until the system has completely stopped and Interrupt a safety screen.
3. Push the start button; the machine should not start.
4. Reset the emergency circuit.
5. Repeat the above steps 2, 3 and 4 for all safety screens.
6. Make sure that the machine does not start when a safety screen is interrupted.

If the machine operates when an emergency stop button is pressed or a safety screen is interrupted, this machine is not safe to operate. Immediately call a qualified technician to repair this defective safety device.



TIP!
The safety screen does NOT switch off the infeed conveyor!

WARNING LABELS

The Prinzen system makes dangerous movements. The system also contains dangerous parts when they contact the body. The following labels are posted as a warning. Understand and remember the meaning of the warning labels.

DANGER!
Keep the warning labels clean. When labels become unclear, replace them.

The flashlight label is used to warn for dangerous voltage inside a cabinet. Contacting parts inside this cabinet may result in permanent personal injury or death.

This sign is used to warn for dangerous movements. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

These signs are used to warn for the danger of limbs being pulled in. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

These signs are used to warn for crushing danger. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

This sign is used to warn for dangerous movements of a lift. Keep a safe distance to the lift. Before entering the lift area, lock the lift movement mechanically. Disregarding this warning may result in permanent personal injury.

Before entering the system:
Push the emergency button and lock it with the safety key.
Keep the safety key in your possession while you are inside the system.

This sign is used to remind you to activate the safety key emergency button, and to keep the safety key in your pocket while you are inside the system.

2. QUICK REFERENCE GUIDE

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

GENERAL

This quick reference guide familiarizes you in a short time with the content of this manual and gives you the most important information about the system.
Read this guide and use the references to absorb this important information.

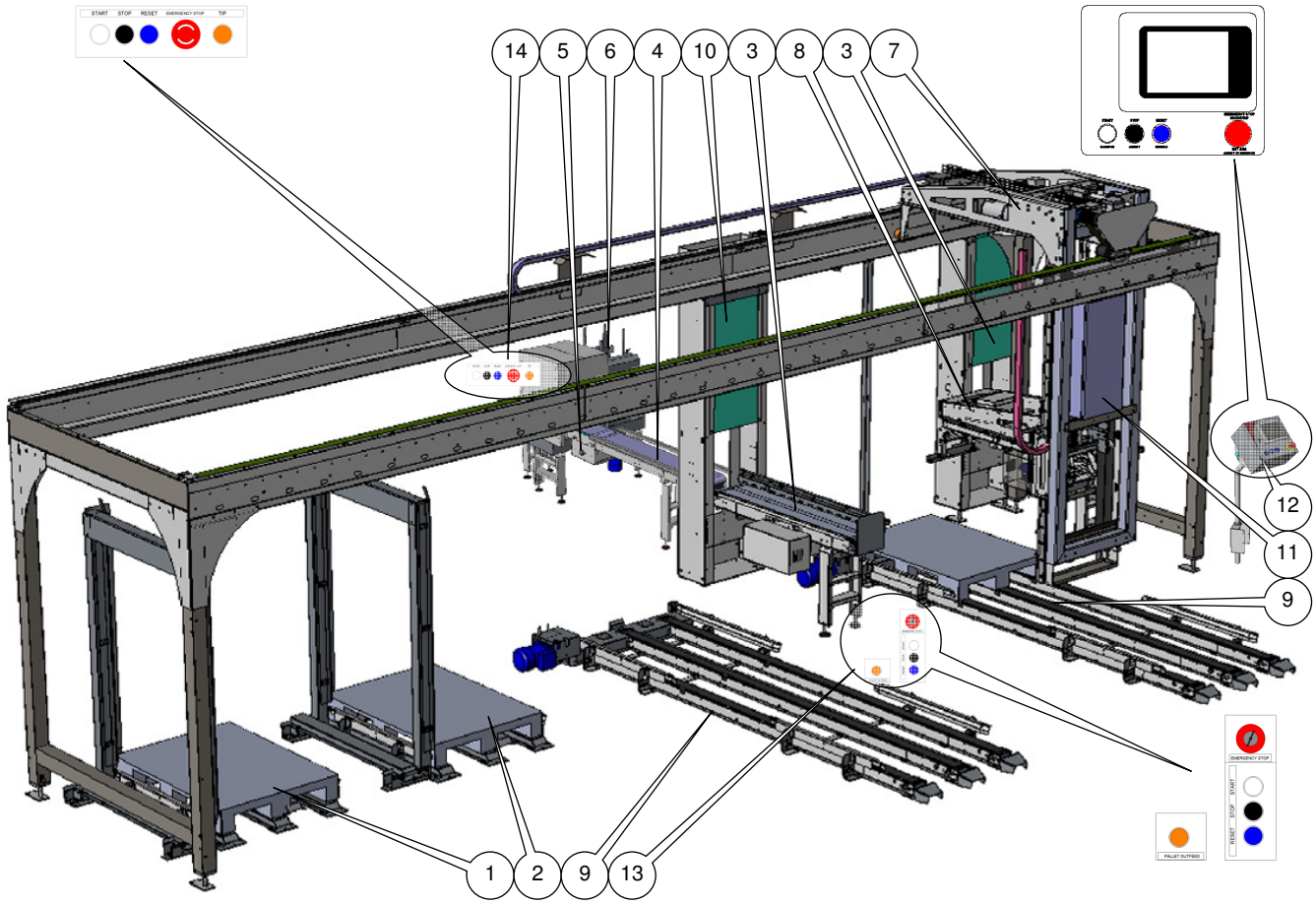
PALLET LOADER

CONSTRUCTION

The Pallet loader consists of:

1 Pallet stock
2 Divider stock
3 Infeed conveyor
4 Buffer conveyor
5 Stacker conveyor (optional)
6 Top tray denester (optional)
7 Fork carrier
8 Fork support
9 Pallet outfeed
10 Electrical cabinet main
11 Electrical cabinet fork carrier / fork support
12 Main operating panel
13 Local operating panel pallet outfeed
14 Local operating panel top tray denester

For more information about the construction of the pallet loader see page 39.
For more information about the operation of the pallet loader see page 63.



CONNECTIONS

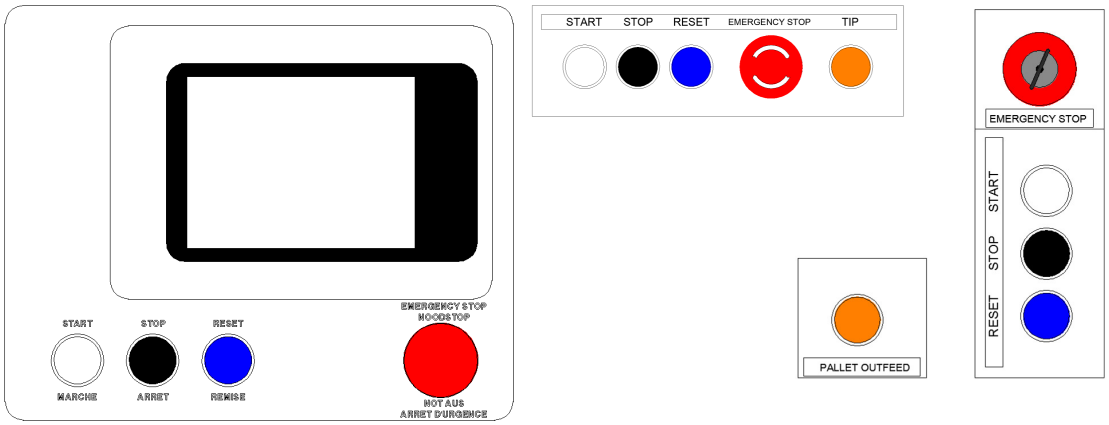
Power connection : 400V 3 phase + N + PE 50Hz
Air connection : in between 8 and 10 bars
For more specifications of the pallet loader see page 42

SAFETY

Before starting to use the system read the safety chapter first.
Perform the safety inspection procedure daily.
See page 27 for the safety inspection procedure.

OPERATING PANELS

With the main operating panel it is possible to start and stop the complete system.
With the local operating panels it is only possible to start or stop part of the system near this operating panel.
For more information about the operating panels, see page 63.



Emergency stop button:
After pushing one of the red button, the system stops immediately. One of the emergency buttons is equipped with a safety key. Releasing this emergency button is only possible with this key.
When somewhere on the system an emergency button is pressed, you have to reset and start the system again by pressing the reset and the start button on this main operating panel.

Emergency stop:
When an emergency button is pressed, the alarm 00200 appears on the touchpanel together with a message informing the operator which emergency button is pressed.
After releasing this emergency button, the message disappears, but the alarm remains present until it is reset on the main operating panel.

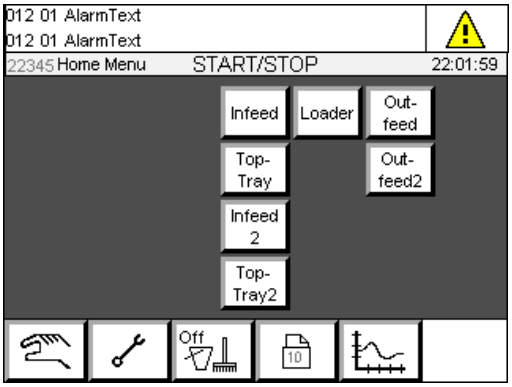
Start:
With the start button it is possible to start the system (or unit).
The start button is ON when the system (or unit) is running.
The start button FLASHES when the system (or unit) is stopping (the stop button is pressed).

Stop:
With the stop button it is possible to stop the system (or unit).
The start button FLASHES while the system (or unit) is stopping.
Pressing the stop button twice stops the system (or unit) immediately.

Reset:
With the reset button it is possible to reset a breakdown in the system (or unit).
The reset button FLASHES during a breakdown of the system (or unit).
It is not possible to start the system when the reset button FLASHES.

OPERATING SCREENS

Touchpanel:
After switching the power supply ON, first the start-up screen appears (this take around 90 seconds). Then it takes another 30 seconds to start up the safety PLC. Because of this wait at least 2 minutes after switching ON the system before trying to run it.
See page 25 for more information about the safety PLC.
Touch the arrow button on the start-up screen to go to the main screen. On the main screen, colored buttons represent the status of the units. When the system is running production, all these buttons should be light green.
See page 72 for more information about the main screen.



See page 68 for more information about using the menu's and screens to operate the system.

Alarms and messages:
Alarms and messages are displayed on the touchpanel including a code. Use this code to find the alarm or message and its corresponding cause and action to solve the error in the trouble shooting guide.

OPERATION

Running production:
1. Supply pallets and dividers to the pallet stock and the divider stock.
   Switch the main power switch ON.
   Wait until the start-up screen appears (approximately 90 seconds).
   Touch the arrow button on the start-up screen to go to the main screen.
   Wait 30 seconds before starting the system.
   Start the system.
   See page 100 for more information about starting the system.
2. While running production, watch the system and duly supply pallets and dividers and remove stacked pallets.
   See page 102 for more information about dividers and pallets supply.
   See page 103 for more information about removing full pallets.
3. Stop the system.
   See page 104 for more information about stopping the system.

Recipe selection:
See page 106 for selection a different recipe.

Scanning:
After switching the power supply ON, manually controlling the pallet loader, or interruption the safety screens of the pallet outfeed conveyors, the pallet loader starts scanning the pallet stack position to determine the next stack position for a row. Sensors on the fork support perform the scan.
See page 54 for more information about the scan sensor.

On a complete top layer (3 rows), the scan sensors are not able to determine whether there is a divider present on top of this layer. When this is the case, after scanning, an operator assistance screen pops up, asking the operator to confirm whether there is a divider present or not. With this information the system starts stacking the next row immediately or it first places a divider on the stacked pallet.

When more than one safety screen is present, the controller knows which safety screen is interrupted. When entering a part of the system through a safety screen, only adapt the part of the system that is protected by this particular safety screen, because only this area is scanned after resetting this safety screen.
See page 23 for more information about the safety screens.

3. MACHINE DESCRIPTION

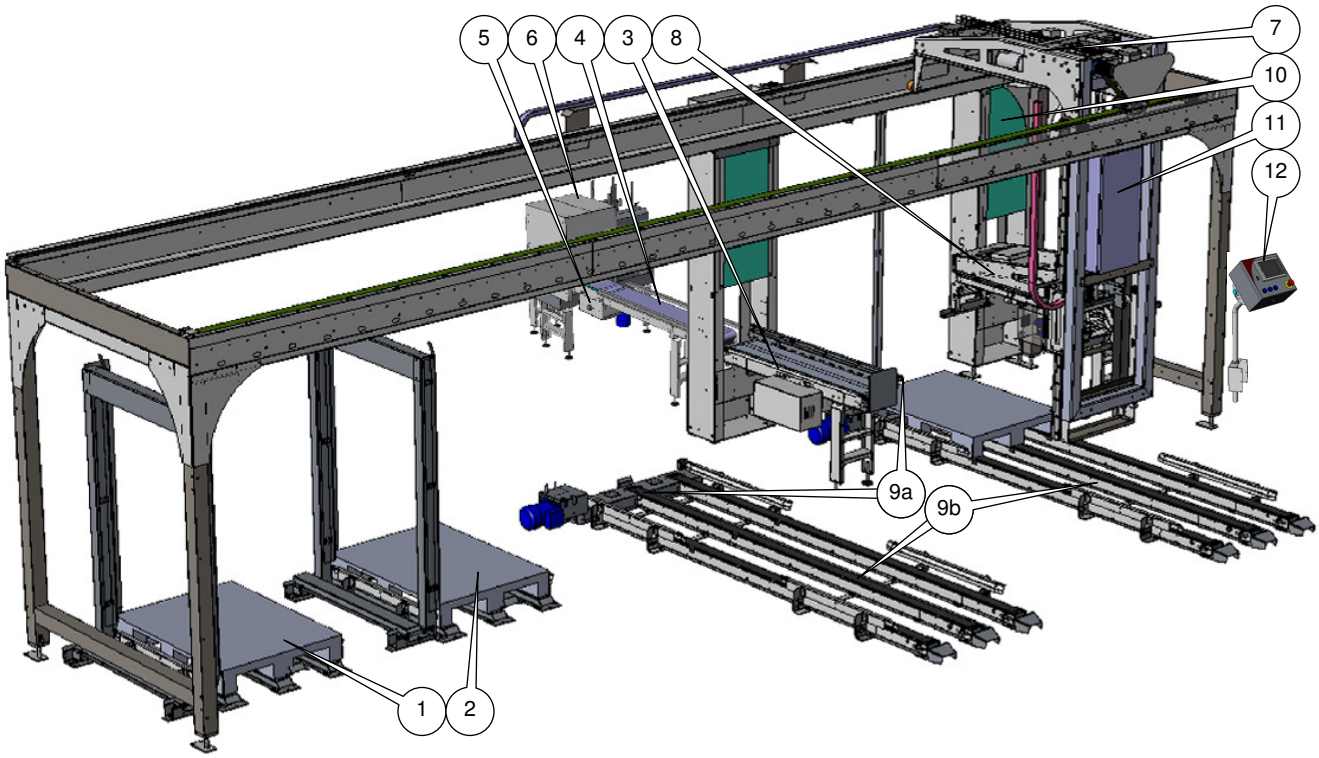
SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

MACHINE DESCRIPTION

The machine description gives information about the most complete pallet loader.
It is possible that your system does not contain all the described units.
For detailed information of all the units of the pallet loader see the Unit description in this chapter.

PALLET LOADER



Use:
The pallet loader is used to stack trays filled with eggs onto pallets. Dividers are placed between the stacks.

Construction:
The Pallet loader consists of:

1 Pallet stock
2 Divider stock
3 Infeed conveyor
4 Buffer conveyor
5 Stacker conveyor (optional)
6 Top tray denester (optional)
7 Fork carrier
8 Fork support
9 Pallet outfeed conveyor
  a. Pallet stack position
  b. Pallet discharge position
10 Electrical cabinet main
11 Electrical cabinet fork carrier / fork support
12 Operating panel

The layout of the Pallet loader is adaptable to the positions of the upstream and downstream equipments and the layout of the building. The above picture is just an example.
The main electrical panel is positioned in the frame of the pallet loader. The electrical parts controlling the fork carrier and fork support are positioned in the frame of the fork carrier. See the electrical drawings for electrical details.

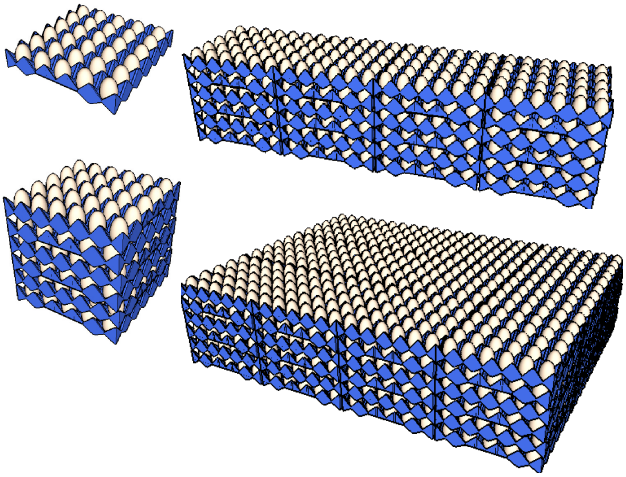
Depending on the execution of the total system, the pallet loader has its own operating panel or it is controlled by the operating panel of the speedpack.

Process:
The operator has to supply a stack of pallets and a stack of dividers and has to remove the stacked pallets. While doing so, the pallet loader is able to continue operating.
The pallet loader automatically places pallets on the pallet stack positions. Stacks with trays enter the pallet loader on the infeed conveyors. The fork carrier / fork support picks-up 4 stacks from the supply belt and places them on the pallet on one of the pallet stack positions. As soon as a complete layer is placed on a pallet it also places a divider on top of this complete layer.
As soon as a pallet is completely loaded, it is automatically discharged from the pallet loader after which the next pallet is positioned on the pallet stack position by the fork carrier / fork support.

Security:
The security of the system is created through a balance between safety and workability: An optimal workable situation is created for the operating personnel but safety was kept in mind.
Dangerous movements of the system are mostly protected with protective covers, fencing or safety screens, but there are exceptions. On a lot of places in the system it is possible to sustain injuries.
The conveyors to supply stack of trays and to remove the stacked pallets are not completely secured.
When the safety screen is interrupted, the fork carrier / fork support stops immediately but the conveyors remain running. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the conveyors and do not touch them when the system is running production.
Read the safety instruction of the units in the chapter unit descriptions.

	**DANGER!** Make sure the system is not able to start when you are inside the pallet loader.
	**CAUTION!** Interrupting the safety screen does not stop the conveyors.
	**CAUTION!** Do not enter objects or body parts into the conveyors or their opening to the pallet loader when the system is running production. Do not come too close to the conveyors and do not touch them when the system is running production.
	**ATTENTION!** Do not enter objects or body parts into the conveyors or their opening to the pallet loader when the system is running production.
	**TIP!** Never use the safety screen or emergency stop buttons for a normal production stop. This may cause start-up problems.

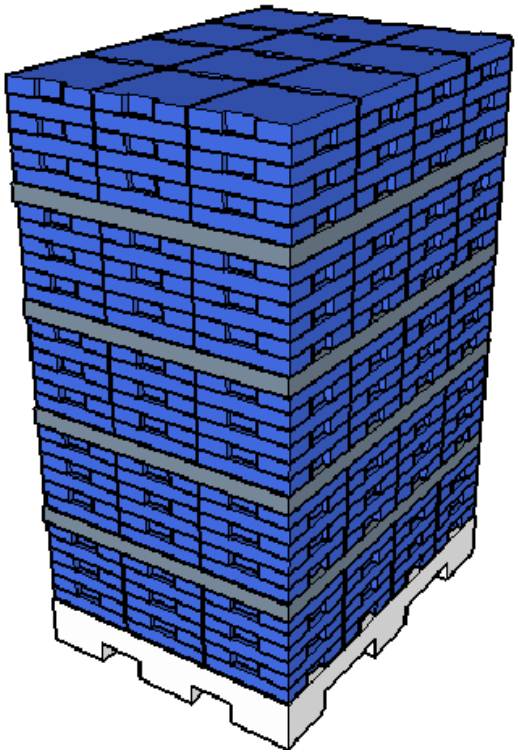
INTENDED USE



The pallet loader is used to stack trays filled with eggs onto pallets. Dividers are placed between the stacks.

A tray is filled with 30 eggs, in a pattern of 5x6. Six of these trays on top of each other form a stack. Four of these stacks form a row.
One layer on a pallet exists out of 3 of these rows.

A divider is placed on top of a layer. On this divider the next layer is placed. This way the pallet loader is able to load 5 layers (optionally 6) onto a pallet with 4 (optionally 5) dividers in between.



The pallet loader is designed to stack trays filled with eggs onto pallets as described above.
Only use the pallet loader for the purpose it was designed for. Any attempt to change or modify the pallet loader may endanger persons and the machine. When the pallet loader is used for a different purpose or faulty operated, Prinzen B.V. cannot accept responsibilities for possible damage.

TECHNICAL SPECIFICATIONS

The construction of your system may differ slightly from the descriptions in this manual. Because of this the data in the technical specifications may be incorrect and/or incomplete for your system.
For complete and exact data, see the lay-out drawing, the electrical drawings and the machine tag of your system.

Specifications:

Maximum capacity	:	80.000 eggs/hour

Electrical data:

Connection voltage	:	400V 3 phase + N + PE 50Hz
Pre fuse minimum	:	25 Amp, slow blowing
Pre fuse maximum	:	25 Amp, slow blowing
Power	:	6 kW
Maximum voltage deviation	:	6% to +10%
Electrical protection	:	IP55

For more information, see the electrical diagrams of your pallet loader.

Pneumatic data:

Air pressure	:	in between 8 and 10 bars (System air regulator reduces it to 6 bars)

For more information, see the pneumatic diagrams of your pallet loader.

Transport and Installation:

Height	:	300 cm.

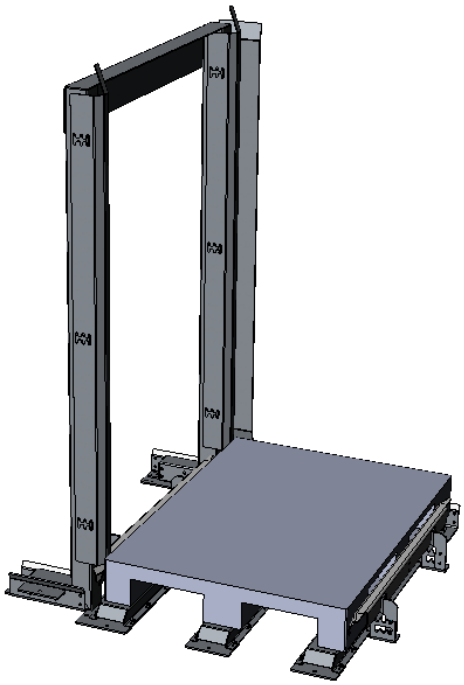
The dimensions (length x width) and weight of the pallet loader depend on its execution. For more information, see the lay-out drawing of your pallet loader.

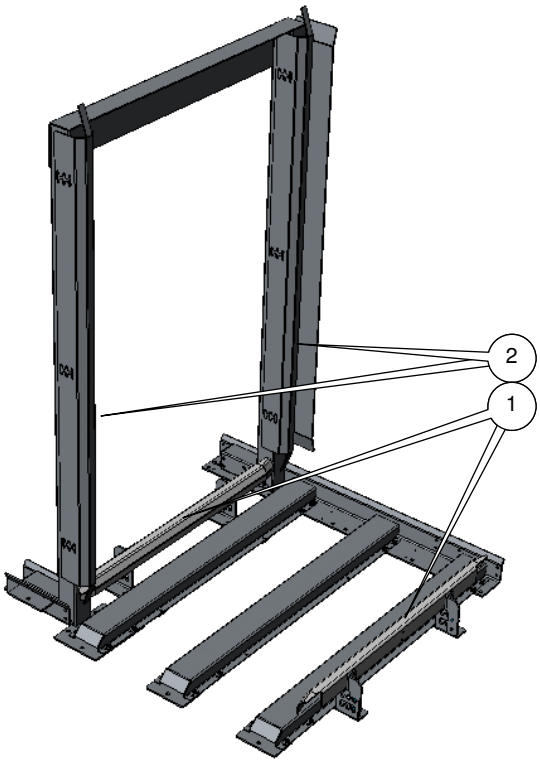
Environment:
The climate around the machine must have a normal working temperature (+10ºC to 30ºC).
During transport and storage the temperature of the system should remain in between 0°C and 45°C.
The system is not suitable for outdoor use and should not be used in a surrounding containing items having a high flash point or an explosive nature.

Environment consequences:
Dismantling and disposal of the system must be carried out by a suitable disposal company, which has the required licenses and permits for the state or the country concerned. Dismantled materials should be sorted for disposal according to local rules and regulations that may apply.
Separate all materials like oil and lubrication fluids and discharge them as chemical waste.

UNIT DESCRIPTION

PALLET STOCK





Use:
The Pallet stock is used to place a stack of pallets for automatic supply of pallets to the pallet stack positions.

Construction:
The pallet stock consists of:

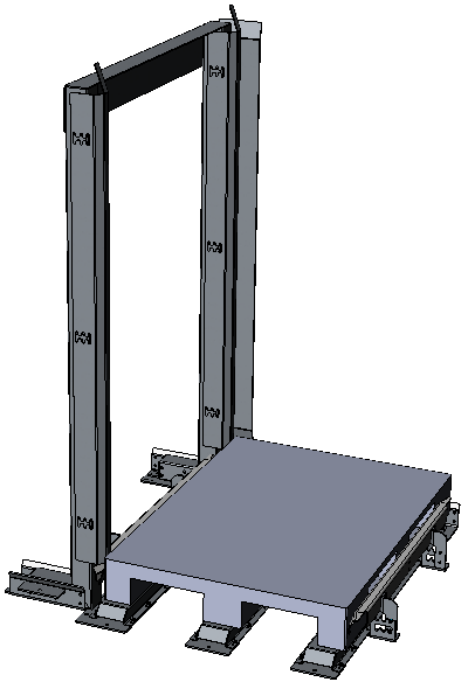
1 Bottom guides
2 Side guides

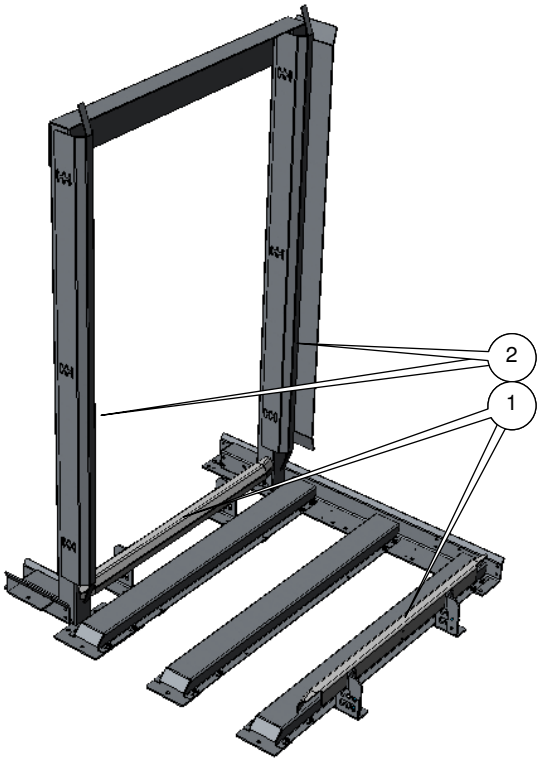
Process:
With a forklift or a hand pallet truck, a stack of pallets is placed in between the bottom guides. Here the pallets are picked-up by the fork carrier / fork support.
As soon as the last pallet is removed a message appears on the operating panel to supply a new stack of pallets.

Safety:
The pallet stock is positioned into the secured area of the pallet loader. On all sides it is protected by fencing except the infeed side which is protected by a safety screen.
When the safety screen is interrupted, the fork carrier / fork support stops immediately.

	**DANGER!** Do not enter objects or body parts into the pallet stock when the system is running production.
	**ATTENTION!** Do not enter objects or body parts into the packer when it is running production.

DIVIDER STOCK





Use:
The divider stock is used to place a pallet with dividers for automatic supply of dividers to the pallet stack positions.

Construction:
The divider stock consists of:

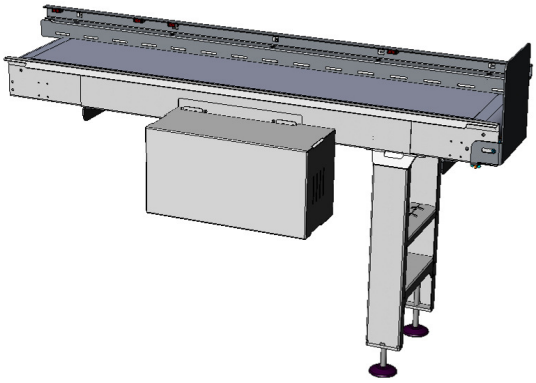
1 Bottom guides
2 Side guides

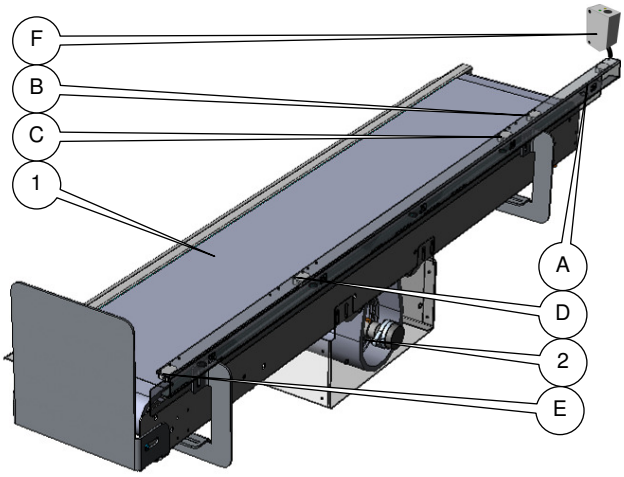
Process:
With a forklift or a hand pallet truck, a pallet with dividers is placed in between the bottom guides. Here the dividers are picked-up by the fork carrier / fork support.
As soon as the last divider is removed the fork carrier / fork support places the empty pallet on the pallet stock after which a message appears on the operating panel to supply a new pallet with dividers.

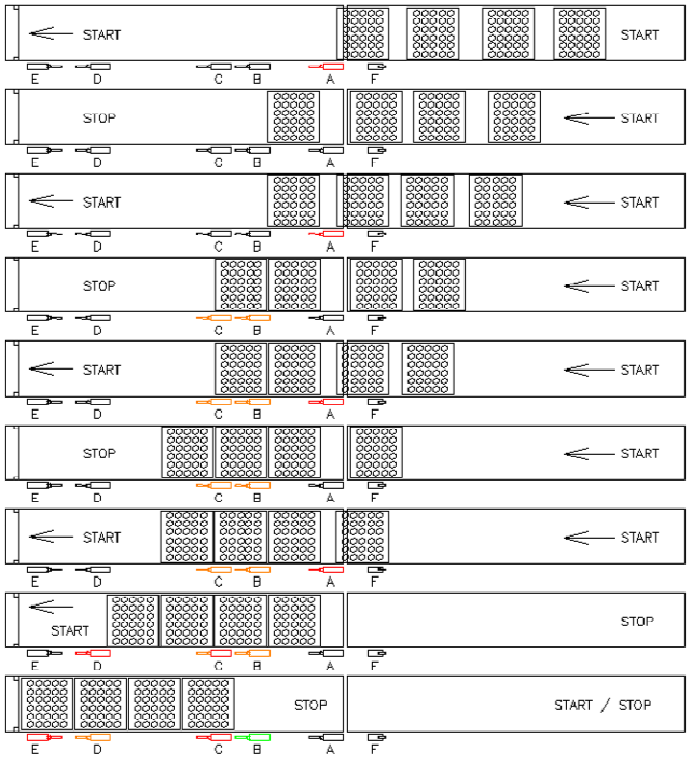
Safety:
The divider stock is positioned into the secured area of the pallet loader. On all sides it is protected by fencing except the infeed side which is protected by a safety screen.
When the safety screen is interrupted, the fork carrier / fork support stops immediately.

	**DANGER!** Do not enter objects or body parts into the pallet stock when the system is running production.
	**ATTENTION!** Do not enter objects or body parts into the packer when it is running production.

INFEED CONVEYOR







Use:
The infeed conveyor transports the supplied stack of trays from the buffer conveyor to the fork carrier / fork support. As an option an additional stacker conveyor and a top tray denester are available.

Construction:
The infeed conveyor consists of:

1 Transport belt
2 Drive mechanism

Process:
During normal production, the buffer conveyor buffers 4 stacks and these 4 stacks are transferred to the infeed conveyor according to the below sequence:
The infeed conveyor runs start/stop. As soon as a stack is detected at its entry it starts, it stops as soon as this stack is completely on the belt. This is repeated until 4 stacks are detected on the belt. Then the infeed conveyor starts to run until the 4 stacks are transferred to the pick-up position which is at the end of the belt. When the 4 stacks are removed by the fork carrier / fork support, the above sequence is repeated.
A number of sensors control the supply of stacks towards the pick-up position:

A. Start belt. When this sensor detects a stack, the belt starts to run. When the stack has passed this sensor the belt stops.
B. Safety 5th stack. When the fork support is ready to pick-up the 4 stacks, this sensor should not detect a stack.
C. Stop infeed belt. This sensor is used in combination with sensor E. When both sensors E and C detect stacks, within a certain time, the belt stops.
D. Stacks to pick-up position. When this sensor detects a stack, 4 stacks are on the infeed belt. The belt starts running until sensors E and C both detect stacks.
E. Stop infeed belt. This sensor is used n combination with sensor C. When both sensors E and C detect stacks, within a certain time, the belt stops.
F. Detection too low stack height. Stacks should be 6 trays high. This sensor prevents entering too low stack heights.

When starting up the infeed the amount of stacks on the infeed conveyor, the buffer conveyor and the stacker conveyor is not known. Because of this, these conveyors are switched into a start-up mode:

1. The buffer conveyor starts to run for a certain time to determine if there are stacks on this conveyor.
2. When a stack is detected at the end of this conveyor, it is transferred to the infeed conveyor.
3. When no more stacks are detected on the buffer conveyor, the stacker conveyor is started to supply 1 stack to the buffer conveyor.
4. The buffer conveyor transfers this stack to the infeed conveyor.
5. The above steps 3 and 4 are repeated until 4 stacks are present on the infeed conveyor.
6. Now the conveyors start to run in the normal production mode (see previous page).

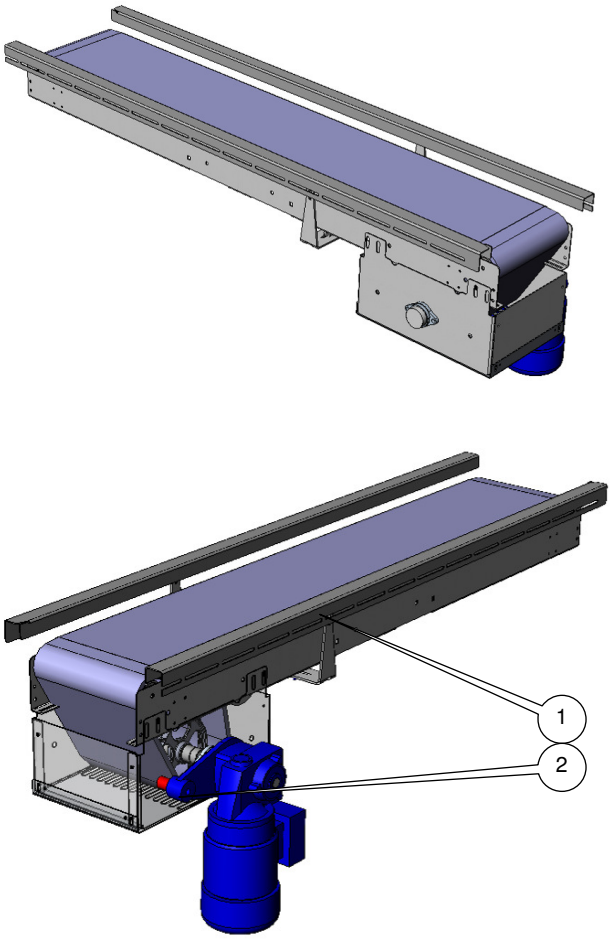
It is possible to use the start-up mode for manually supplying stacks to the pallet loader. To do this, stop the system when there are less than 4 stacks on the infeed conveyor. Now manually place a stack on the buffer conveyor and start the system again.
The manually placed stack will be transferred to the infeed conveyor and stacked on the pallet.
In total, not more than 4 stacks should be present on the infeed buffer conveyor.

	**CAUTION!** Do not enter objects or body parts into the infeed conveyor when it is running production.
	**CAUTION!** Do not enter objects or body parts into the entry of the pallet loader when the system is running production.
	**CAUTION!** Interrupting the safety screen does not stop the infeed conveyor.
	**ATTENTION!** Do not enter objects or body parts into the infeed conveyor when it is running production.
	**ATTENTION!** Do not enter objects or body parts into the entry of the pallet loader when the system is running production.

	**TIP!** Never place stacks on the buffer conveyor during normal production of the pallet loader. The system will malfunction!

Safety:
The infeed conveyor is positioned into the secured area of the pallet loader. On all sides it is protected by fencing except the entry for stacks into the pallet loader. The buffer conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the infeed conveyors and do not touch them when the system is running production. Never touch the belt or come near the entry of the pallet loader when the system is running production.

BUFFER CONVEYOR



Use:
The buffer conveyor transports the supplied stack of trays from the upstream systems to the infeed conveyor.

Construction:
The infeed conveyor consists of:

1 Transport belt
2 Drive mechanism

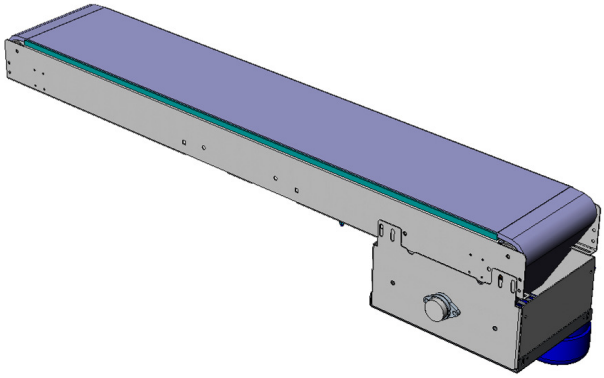
Process:
During normal production, the buffer conveyor receives 4 stacks from the upstream system and transfers these 4 stacks to the infeed conveyor according to the below sequence:
The buffer conveyor runs start/stop. As soon as a stack is detected at its entry it starts, it stops as soon as this stack is completely on the belt. This is repeated until 4 stacks are present on the belt. As soon as the infeed conveyor request stacks, the buffer conveyor transfers these stacks to the infeed conveyor. Then the above sequence is repeated.

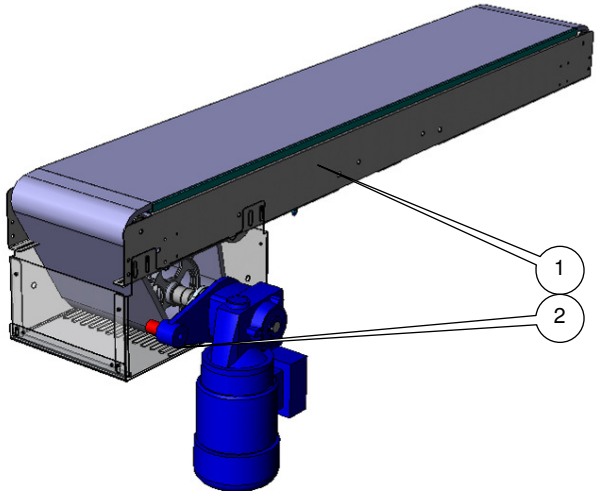
When starting up the pallet loader the amount of stacks on the infeed conveyor, the buffer conveyor and the stacker conveyor is not known. Because of this, these conveyors are switched into a start-up mode:
See the previous page for the start-up sequence.

Safety:
The buffer conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the conveyor and do not touch it when the system is running production. Never touch the belt when the system is running production.

	**CAUTION!** Do not enter objects or body parts into the buffer conveyor when the system is running production.
	**CAUTION!** Interrupting the safety screen does not stop the conveyors.
	**ATTENTION!** Do not enter objects or body parts into the buffer conveyor when it is running production.

STACKER CONVEYOR





Use:
The optional stacker conveyor transports the supplied stacks of trays from the upstream systems to the buffer conveyor. During this transport, the top tray denester places a top tray on top of the stack and turns the stacks for the even layers.

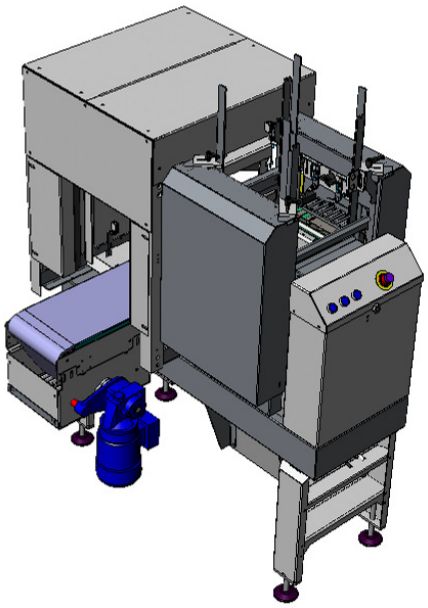
Construction:
The stacker conveyor consists of:
1 Transport belt
2 Drive mechanism
Above the stacker conveyor the top tray denester is positioned.

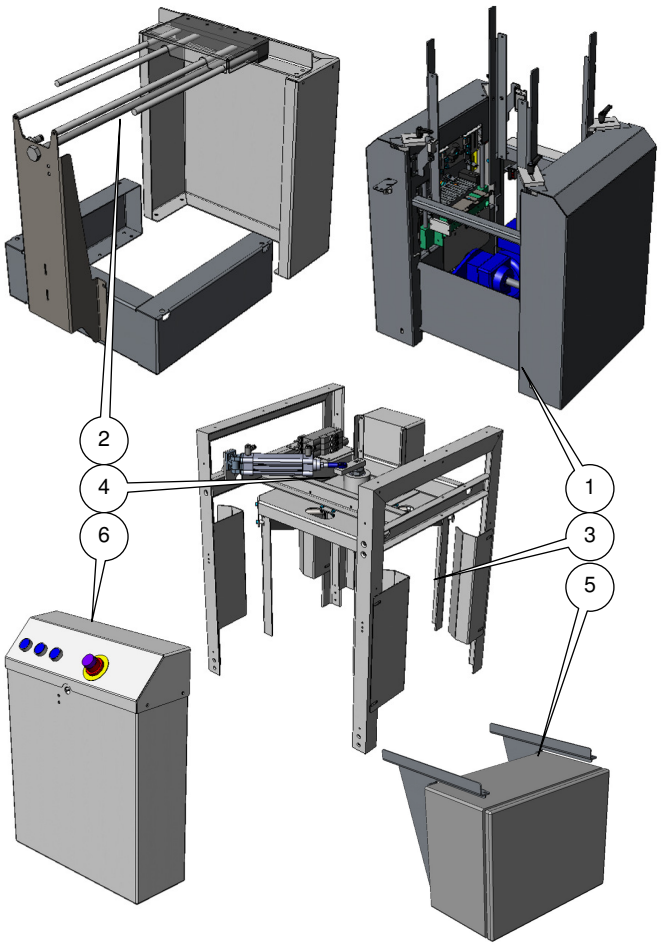
Process plastic trays:
On request of the buffer conveyor stacks are supplied by the upstream systems and transferred to the buffer conveyor.
Process paper trays:
Stacks are supplied by the upstream systems and are stopped underneath the top tray denester. The top tray denester places a tray on top of the stack.
Depending on the destination layer of the stacks, the stacks are immediately transferred (layer 1, 3 and 5) to the buffer conveyor, or the stacks are first turned (layer 2, 4 and 6) before they are transferred to the buffer conveyor.

Safety:
The optional stacker conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the conveyor and do not touch it when the system is running production. Never touch the belt when the system is running production.

	**CAUTION!** Do not enter objects or body parts into the stacker conveyor when the system is running production.
	**CAUTION!** Interrupting the safety screen does not stop the conveyors.
	**ATTENTION!** Do not enter objects or body parts into the stacker conveyor when it is running production.

TOP TRAY DENESTER





Use:
The optional top tray denester is only used when palletizing stacks with paper trays. It places top trays on the stacks and turns some of the stacks.

Construction:
The top tray denester consists of:

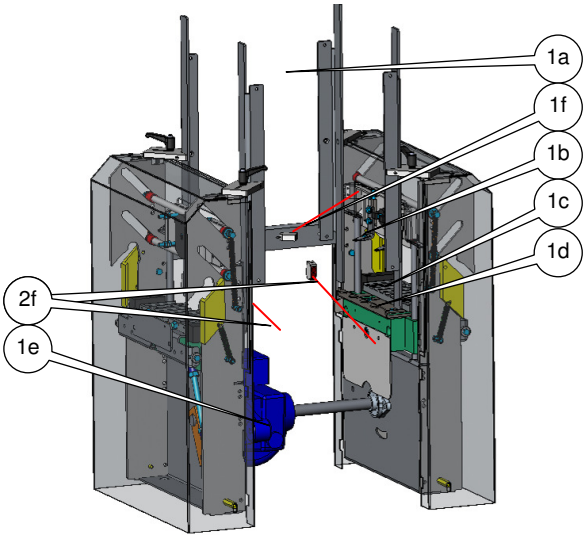
1 Denester
2 Pusher
3 Centering unit
4 Rotating unit
5 Electrical cabinet
6 Local operating panel

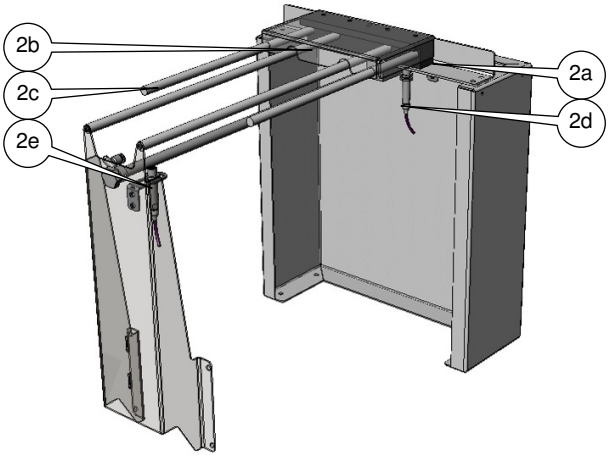
Underneath the top tray denester the stacker conveyor is positioned for transporting the stacks.

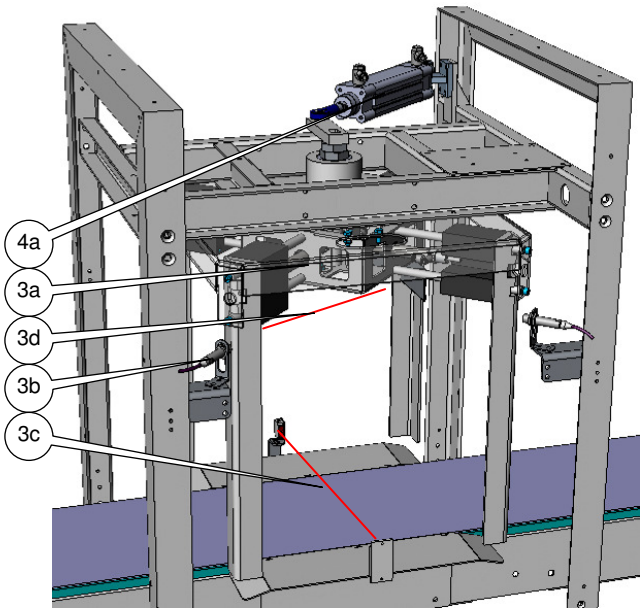
Process plastic trays:
When plastic trays are used, the top tray denester is not used.

Process paper trays for layer 1, 3 and 5:
Trays are manually supplied into the bunker when the machine is stopped and rest on the top grippers.
Stacks are supplied by the upstream systems and are stopped underneath the top tray denester.
The denester places one tray from the bottom of the stack of trays onto the pusher which transfers it above the stack. Following the centering unit closes to center the stack. Now the pusher moves back and the tray drops onto the stack. After this the centering unit opens up and the stack is transferred towards the pallet loader.

Process paper trays for layer 2, 4 and 6:
When carton dividers are used, for some recipes the stack orientation changes per layer. The stacks of the 2nd, 4th and 6th layer are all turned 90°.
Trays are manually supplied into the bunker when the machine is stopped and rest on the top grippers.
Stacks are supplied by the upstream systems and are stopped underneath the top tray denester.
The denester places one tray from the bottom of the stack of trays onto the pusher which transfers it above the stack. Following the centering unit closes to center the stack. Now the pusher moves back and the tray drops onto the stack. After this the rotating unit turns the stack 90° after which the centering unit opens up and the stack is transferred towards the pallet loader.







The denester (1) consists of:

a) Bunker
b) Upper grippers
c) Lower grippers
d) Tray lift
e) Drive mechanism
f) Bunker almost empty detection

The pusher (2) consists of:

a) Pusher cylinder
b) Pusher plate
c) Tray carriers
d) Pusher IN sensor
e) Pusher OUT sensor
f) Tray on pusher detection (2x)

The centering unit (3) consists of:

a) Centering cylinders (4x)
b) Centering unit open sensors (2x)
c) Stack detection
d) Stack height (6 trays) detection

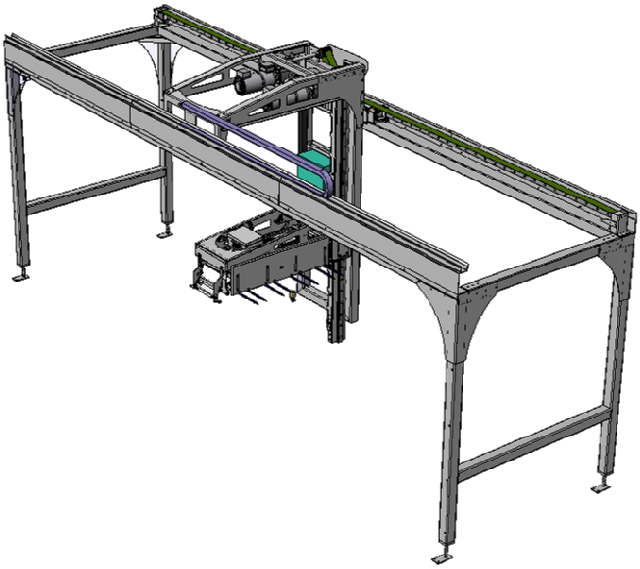
The rotating unit (4) consists of:

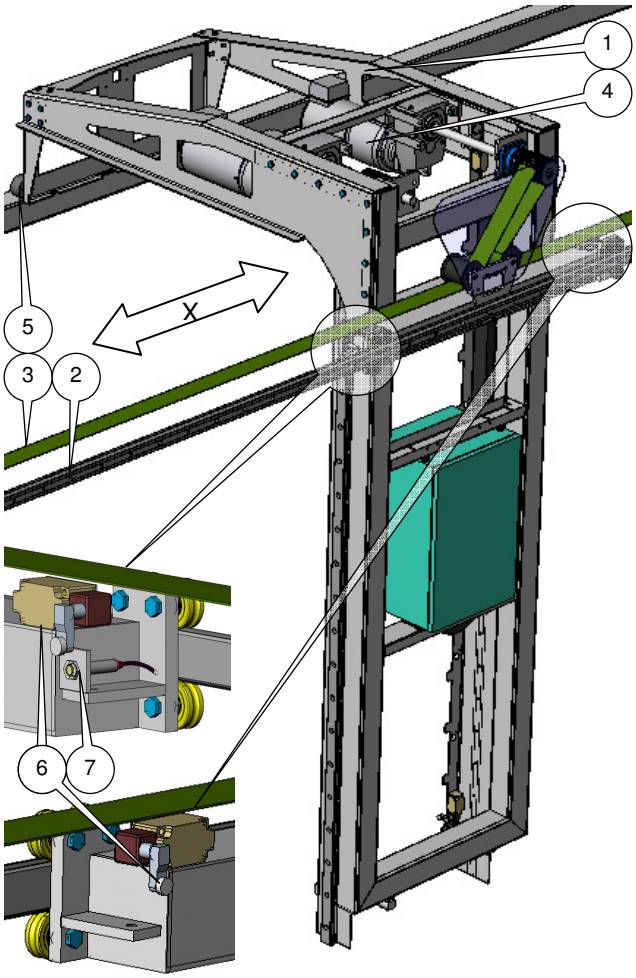
1. Rotating cylinder

Safety:
The optional top tray denester is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the denester and do not touch it when the system is running production.

	**CAUTION!** Do not enter objects or body parts into the top tray denester when the system is running production.
	**CAUTION!** Interrupting the safety screen does not stop the top tray denester.
	**ATTENTION!** Do not enter objects or body parts into the top tray denester when it is running production.

FORK CARRIER





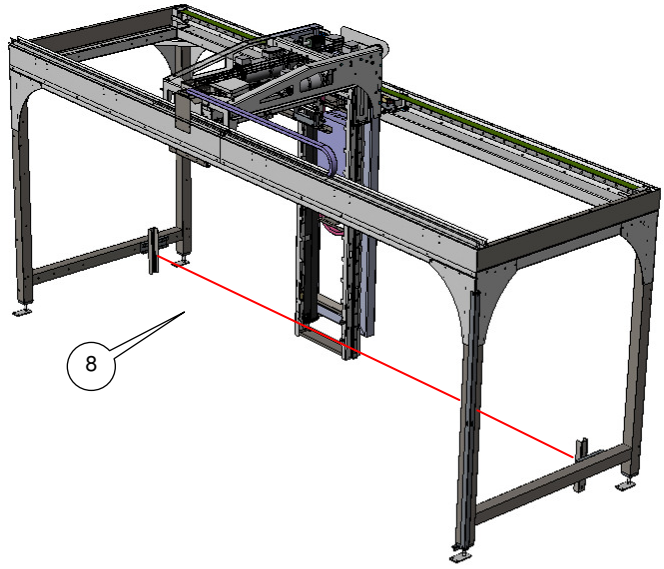
Use:
The fork carrier /fork support transports the stacks of trays from the infeed conveyors towards the pallet stack positions. Besides this, it also transports the pallets and the dividers from their respective stocks towards the pallet stack position.

Construction horizontal movement:
The fork support (vertical movement) is attached to the fork carrier (horizontal movement) which runs forwards and backwards on a frame above the pallet stock, divider stock, infeed conveyors and both pallet stack positions. The construction taking care of the horizontal movement consists of:

1 Fork carrier frame
2 Guide rail
3 Notched belt
4 Motor
5 Wheels
6 Limit switches
7 Home sensor
8 Crash detection screen

On one side the fork carrier runs on a guide rail. On the other side the fork carrier uses wheels to run on the frame. The motor (with an encoder and a fan) drives the fork carrier via the notched belt.
The limit switches on the fork carrier protect it against moving too far forwards or backwards. The home sensor determines the initial position of the fork carrier.
The crash detection screen detects obstructions on the 'open' sides of the pallet loader and prevents collisions with the pallets in the pallet stock, pallet with dividers or pallet with stacks.

Process:
The fork carrier moves forwards and backwards from pallet stock, divider stock and infeed conveyor to the pallet stack positions. The fork support moves upwards and downwards to pick-up pallets, dividers and stacks and to place these pallets, dividers or stacks on the pallet stack position.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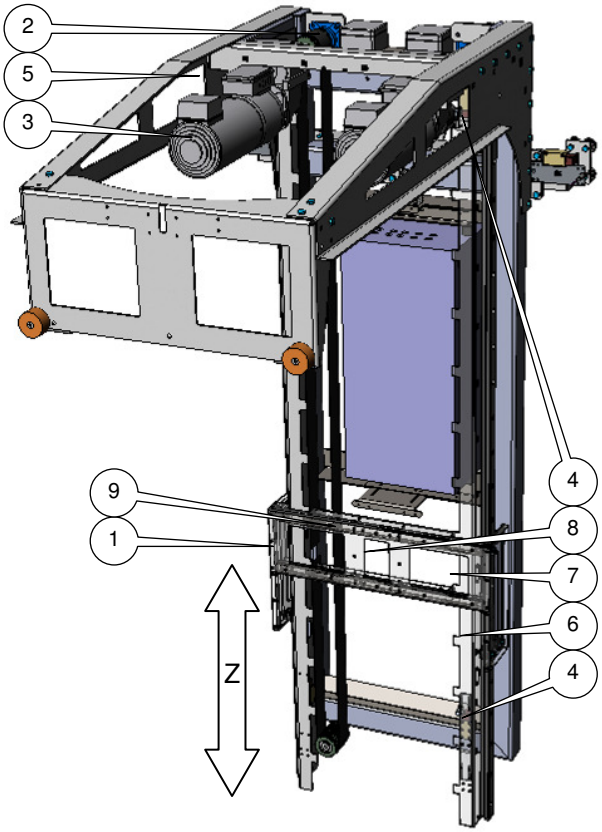
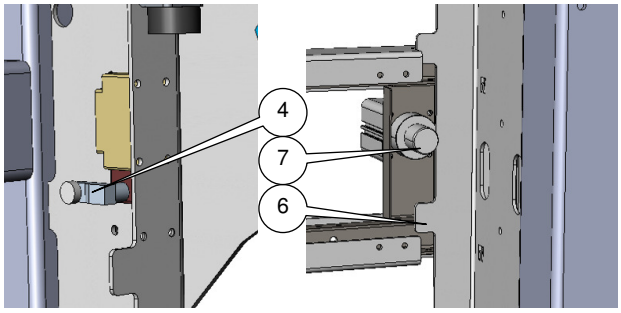
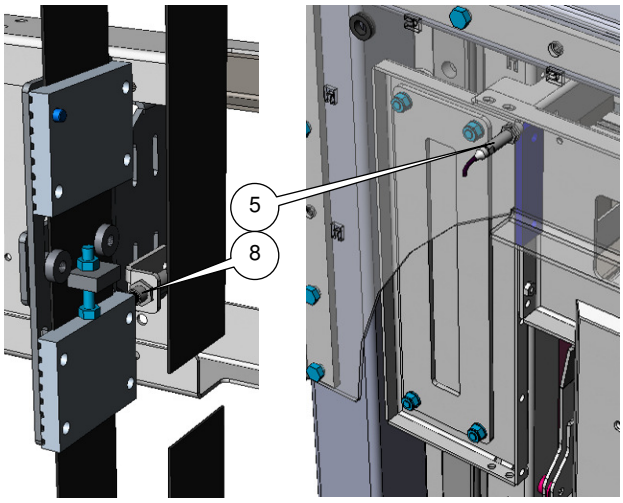






Construction vertical movement:
The fork support runs upwards and downwards in the frame of the fork carrier. The construction taking care of the vertical movement consists of:

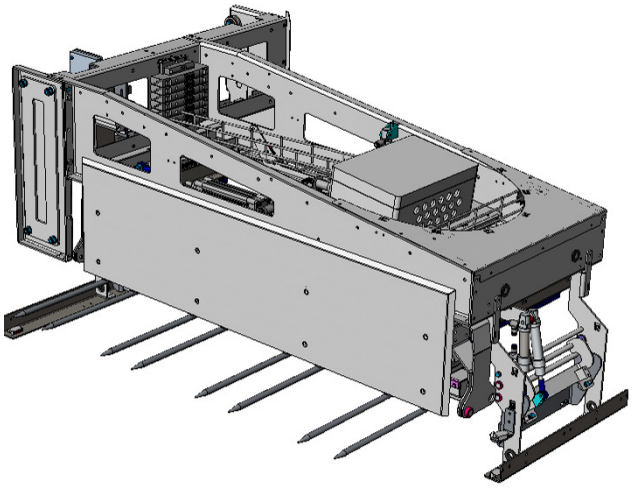
1 Guide rails (2x)
2 Notched belt
3 Motor
4 Limit switches
5 Home sensor
6 Strip with protrusions
7 Safety catch cylinder
8 Safety stop sensor
9 Fork support base plate

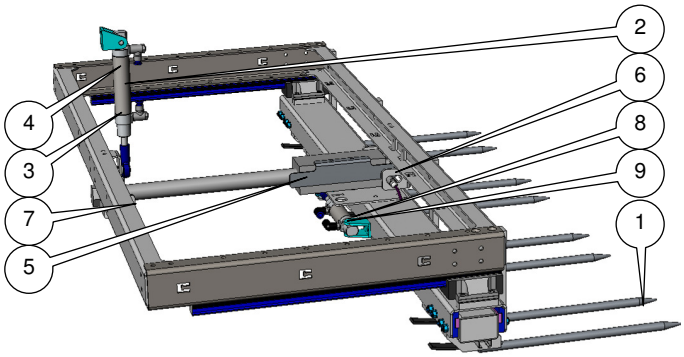
The fork support runs over 2 guiding rails. The motor (with an encoder, a brake and a fan) on top of the fork carrier drives the fork support via a notched belt.
The limit switches on the fork carrier protect the fork support against moving too far up or down. The home sensor determines the initial position of the fork support (vertical movement (Z)).
The piston of the safety catch cylinder moves into the strip with protrusions to prevent the downward movement of the fork support when the machine is stopped.
The safety stop sensor immediately stops the downward movement of the fork support when it hits an obstruction.

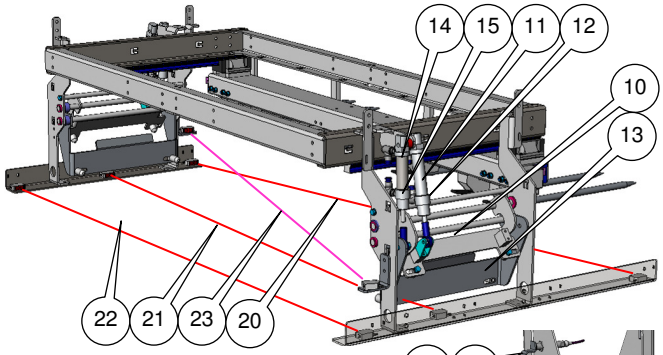
Safety:
The fork carrier is completely secured by fencing and a safety screen which immediately stops the pallet loader when it is interrupted. Make sure it is not possible to start the system when you are inside the pallet loader.

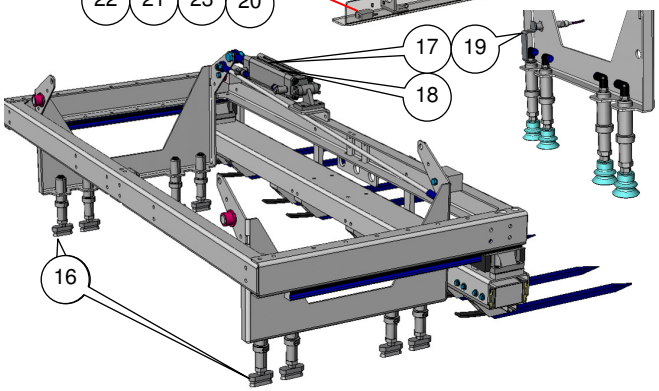
	**DANGER!** Make sure it is not possible to start the system when you are inside the pallet loader!
	**DANGER!** Make sure the safety catch is OUT before entering the pallet loader.

FORK SUPPORT









Use:
The fork support is used to lift the stacks of trays, the dividers and the pallets.

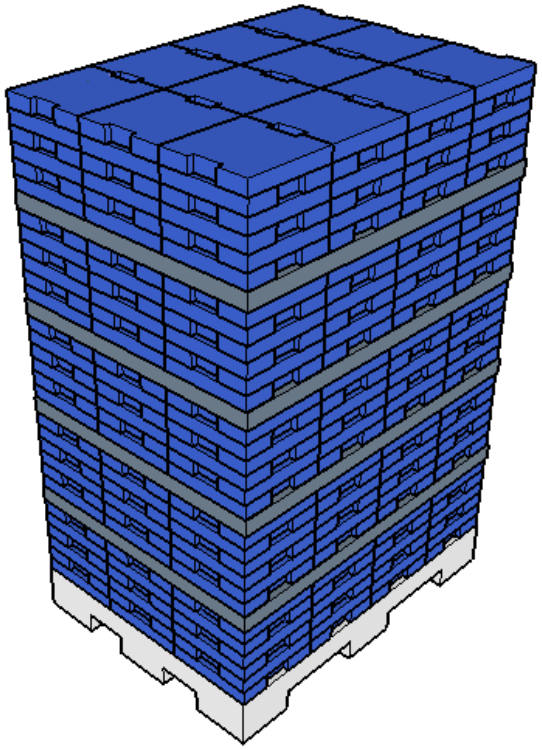
Construction fork support:

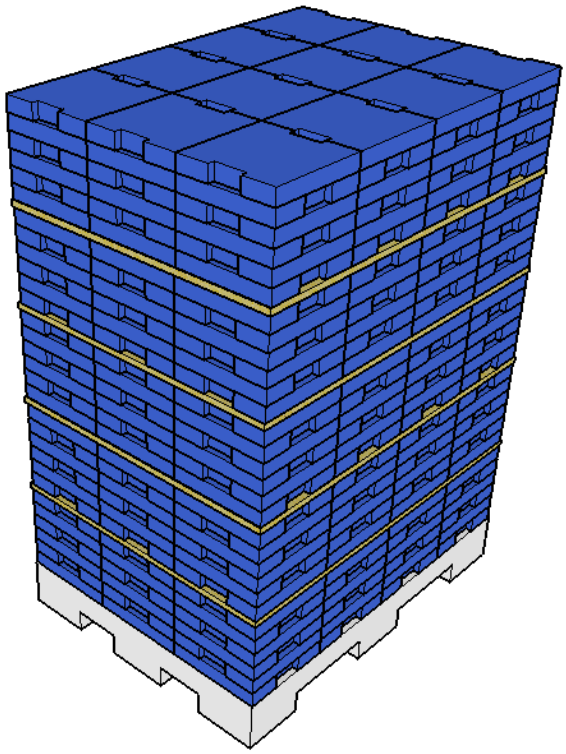
1 Forks
2 Forks flipping cylinder
3 Forks flip sensor
4 Forks horizontal sensor
5 Forks in/out cylinder
6 Forks out sensor
7 Forks in sensor
8 Forks side shift cylinder
9 Forks side shift sensors
10 Plastic divider grippers (2x)
11 Plastic divider gripper cylinders (2x)
12 Plastic divider gripper closed sensor
13 Pallet gripper (2x)
14 Pallet gripper cylinder (2x)
15 Pallet gripper closed sensor
16 Suction cups (8x)
17 Venturi frame cylinder
18 Venturi frame up / down sensors
19 Venturi frame touch sensor
20 Scan row 1 / touch sensor place row
21 Scan row 2 / divider / pallet
22 Scan row 3
23 Pallet placed sensor

Scanning:
The scan sensors (20, 21 and 22) are scanning the pallet stack positions to determine where to start stacking.

Process placing pallet:
The fork carrier moves the fork support above the pallet stock. Above the pallet stock it moves down, first fast until the scan pallet sensor (21) detects a pallet. From this position it moves a fixed distance down. The pallet grippers (13) close to pick up the pallet after which the fork carrier moves the fork support above the pallet stack position. Here the fork support moves a fixed distance down to place the pallet on the pallet stack position.
When the pallet hits the ground before the fork support has reached its bottom position, the pallet is lifted up and the pallet placed sensor (23) immediately stops the fork support movement.

Process pallet stacking:
The fork carrier moves the fork support with retracted forks to the infeed conveyor. First the forks are inserting underneath a row of stacks and then the forks are tilting backwards. After this, the fork carrier moves the fork support to the pallet stack position where the touch sensor (20) detects the exact height of the pallet or divider.





After this it moves a fixed distance down to place the row of stacks on the pallet or divider. This sequence is repeated for the 2nd and 3rd row. After placing the 3rd row on the pallet or divider, the fork support will place a divider on top of the layer.

For paper trays and carton dividers the touch sensor (20) is not used. After placing a carton divider, this height position is used. The fork support moves to this position. Then it moves a fixed distance down to place the row on the pallet or divider.

Process placing plastic divider:
The fork carrier moves the fork support above the divider stock. Above the divider stock it moves down, first fast until the scan divider sensor (21) detects a divider. From this position it slowly moves a fixed distance down. The divider grippers (10) close to pick up the divider after which the fork carrier moves the fork support above the pallet stack position. Here the fork support moves down until the scan divider sensor (21) detects the upper layer. From this position it moves a fixed distance down and places the divider on top of this layer.

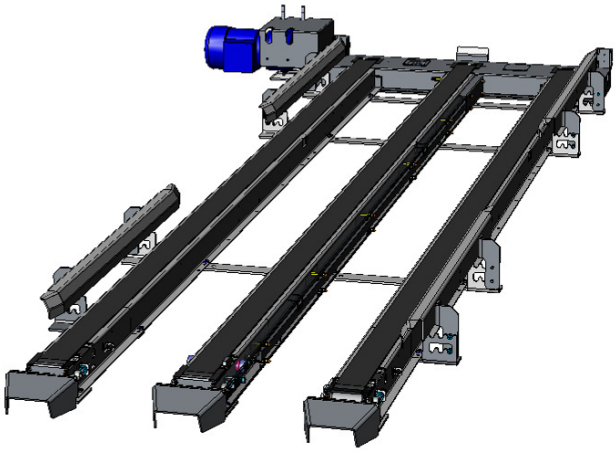
Process placing carton divider:
The fork carrier moves the fork support above the divider stock. The forks are extended. Above the divider stock first the venturi frame expands after which the fork support moves down, first fast until the scan divider sensor (21) detects dividers. From this position it slowly moves down until the suction cups are pushing on the divider and the touch sensor (19) turns OFF. The vacuum switches ON and the fork support move a certain distance up and stops for a certain time to allow more stuck cartons dropping down on the divider stock again. Then the fork carrier moves the fork support above the pallet stack position. Here the fork support moves down until the scan divider sensor (21) detects the upper layer. From this position it slowly moves down until the touch sensor (19) turns OFF. Now the vacuum switches OFF and the divider is placed on the layer.

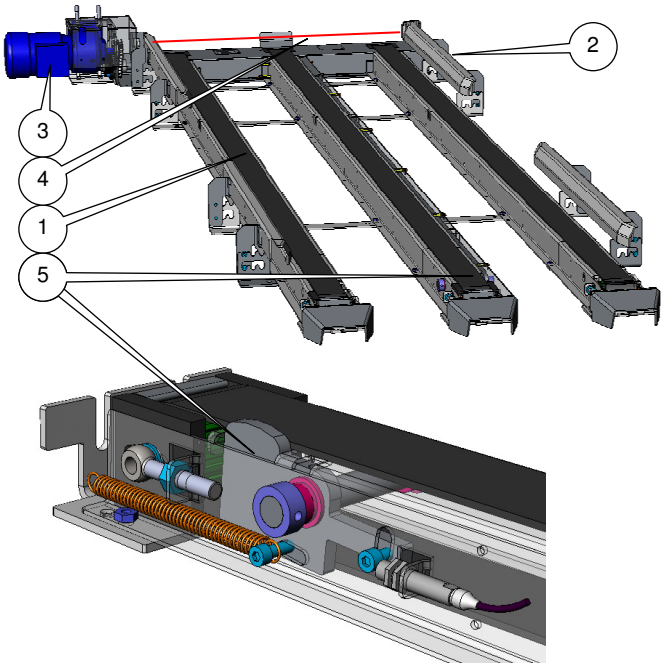
Process side shift:
When carton dividers are used, for some recipes the stack orientation changes. The stacks of the 1st, the 3rd and the 5th layer are all placed unturned, but the stacks of the 2nd, 4th and 6th layer are all turned 90°. Because of this, for stacking the 2nd, 4th and 6th layer, the insert position of the forks have to shift with respect to the insert position of the 1st, 3rd and 5th layer. After placing the 1st, 3rd and 5th carton divider, the side shift cylinder moves the forks to a different insert position.

Safety:
The fork support is completely secured by fencing and a safety screen which immediately stops the pallet loader when it is interrupted. Make sure it is not possible to start the system when you are inside the pallet loader.

	**DANGER!** Make sure it is not possible to start the system when you are inside the pallet loader!
	**DANGER!** Make sure the safety catch is IN before entering the pallet loader.
	**DANGER!** Make sure the fork support is in its bottom position before entering the system. Never sit, crawl or walk underneath the fork support.

SINGLE OUTFEED CONVEYOR





Use:
On the pallet stack position an outfeed conveyor is placed for automatic removal of the stacked pallets.
For discharging more pallets without removing them, multiple outfeed conveyors are available.

Construction:
The transport conveyor consists of:

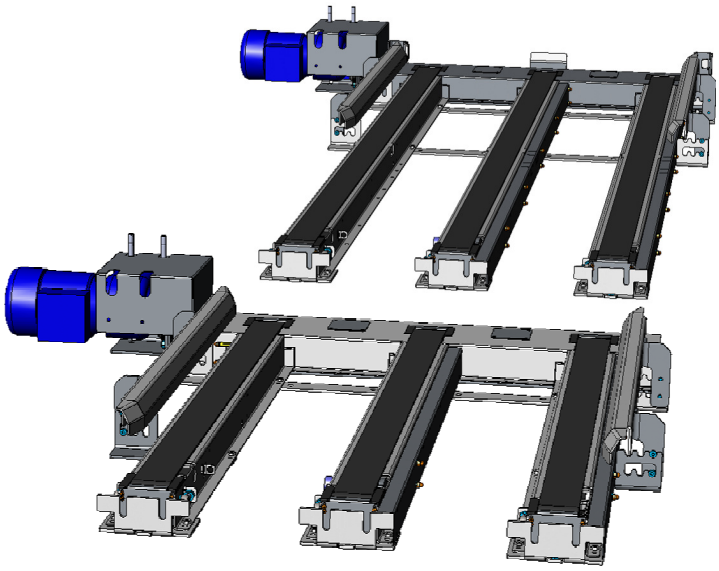
1 Notched belts (3x)
2 Pallet guides
3 Drive mechanism
4 Stop pallet infeed sensor
5 Pallet at discharge sensor

Process:
As soon as a pallet is completely loaded, the transport conveyor starts to run to transfer the full pallet from the pallet stack position towards the end of the conveyor. At the same time the fork carrier / fork support starts to pick a new pallet from the pallet stock and places this pallet on the pallet stack position when the full pallet is detected at the end of the conveyor. A message appears on the operating panel to remove the full pallet from the end of the conveyor. With a forklift or a hand pallet truck, it is possible to remove the full pallet.

Safety:
The transport conveyor is partially positioned into the secured area of the pallet loader. On all sides it is protected by fencing except the outfeed side. Here a safety screen is placed. Be cautious with loosely hanging clothes and long hair, do not come too close to the conveyor and do not touch it when the system is running production.
Do not stand or walk on the outfeed conveyor. When it suddenly starts to discharge a pallet, you may fall or your limbs (feet) may get pinched between the moving pallet and machine parts resulting in permanent injury.

	**DANGER!** Make sure it is not possible to start the system when you are inside the pallet loader!
	**CAUTION!** Interrupting the safety screen does not stop the transport conveyor.
	**CAUTION!** Do not enter objects or body parts into the transport conveyor when the system is running production.
	**ATTENTION!** Do not enter objects or body parts into the transport conveyor when the system is running production.

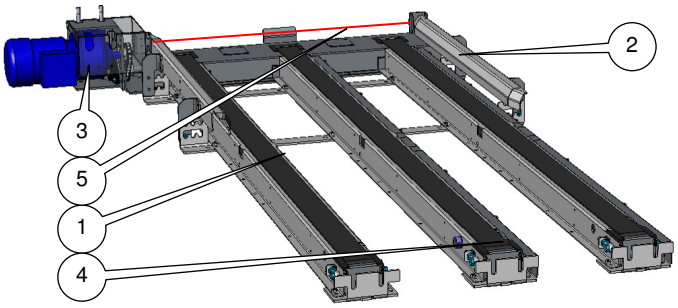
MULTIPLE OUTFEED CONVEYORS

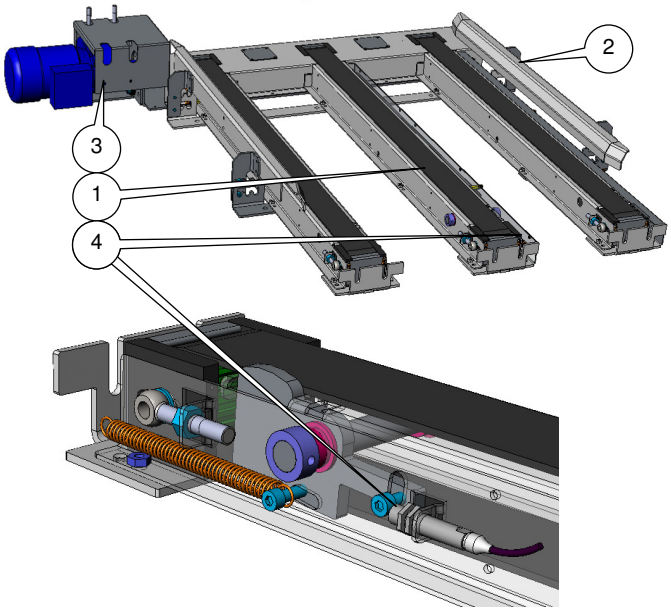


Use:
The multiple outfeed conveyors are placed on the pallet stack position for discharging more pallets without removing them immediately.

Construction:
All outfeed conveyors consist of:

1 Notched belts (3x)
2 Pallet guides
3 Drive mechanism
4 Pallet at end of conveyor sensor
5 Stop pallet infeed sensor





Process:
As soon as a pallet is completely loaded, the 1st outfeed conveyor starts to run to transfer this pallet to the 2nd outfeed conveyor. As soon as the pallet is removed the fork carrier / fork support starts to place a new pallet from the pallet stock onto this conveyor.
At the same time the 2nd conveyor transfers the full pallet to the 3rd conveyor. This is repeated until the pallet is detected at the end of the last conveyor. A message appears on the operating panel to remove the full pallet from this conveyor. With a forklift or a hand pallet truck, it is possible to remove the full pallet.
When the pallet is not removed, the next full pallet is transferred to the penultimate outfeed conveyor. This is repeated until all the outfeed conveyors are full.
When a pallet is removed on the last conveyor and the pallet outfeed acknowledge button is pressed, all other conveyors start to run to move all the pallets to the next conveyor.

Safety:
Some of the conveyors are not positioned in the secured area of the pallet loader. Be cautious with loosely hanging clothes and long hair, do not come too close to these conveyors and do not touch them when the system is running production.
Do not stand or walk on the outfeed conveyors. When they suddenly starts to discharge a pallet, you may fall or your limbs (feet) may get pinched between the moving pallet and machine parts resulting in permanent injury.

	**DANGER!** Make sure it is not possible to start the system when you are inside the pallet loader!
	**CAUTION!** Interrupting the safety screen does not stop the transport conveyor.
	**CAUTION!** Do not enter objects or body parts into the transport conveyor when the system is running production.
	**ATTENTION!** Do not enter objects or body parts into the transport conveyor when the system is running production.

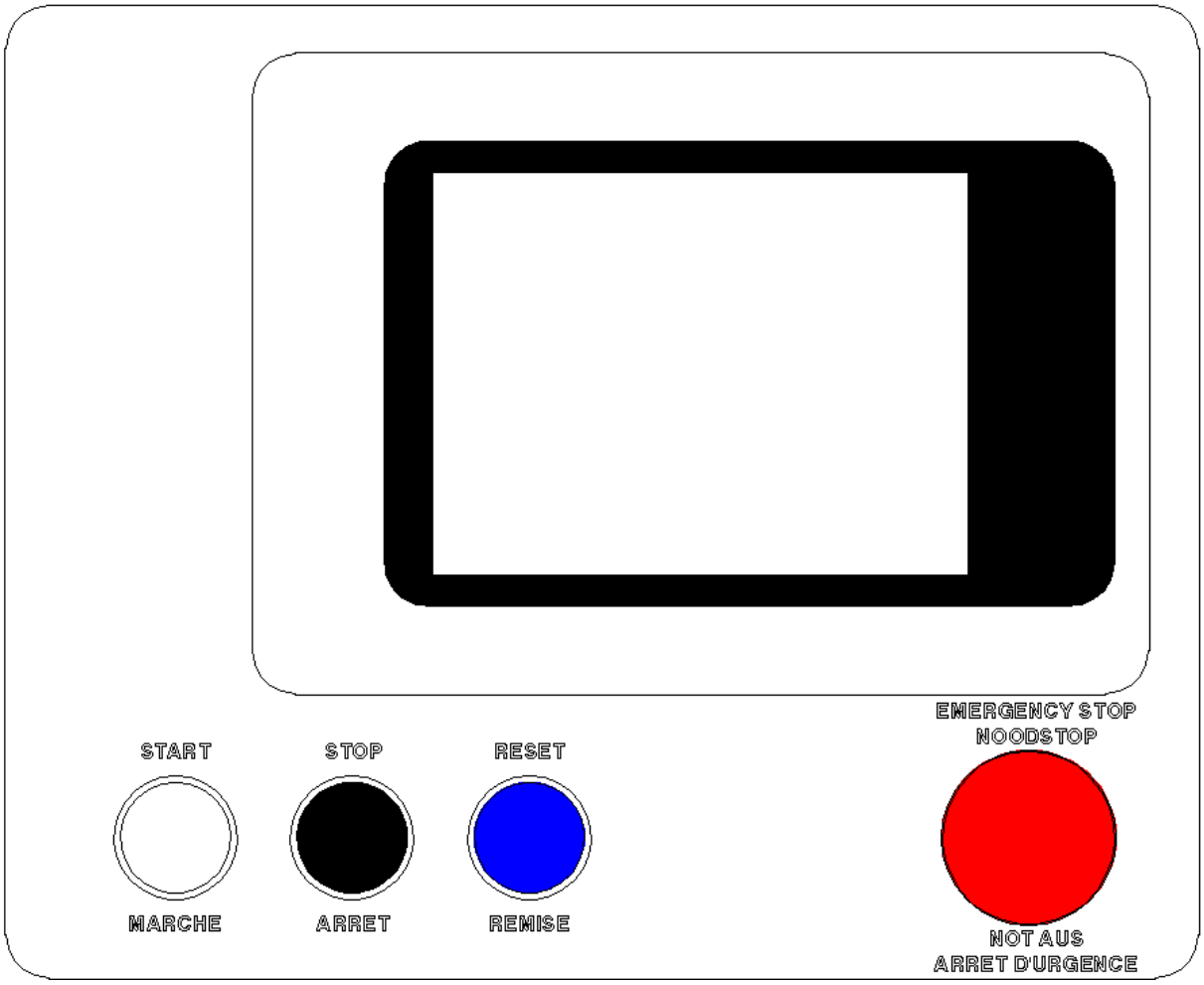
4. OPERATION

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

EXPLANATION OF THE OPERATION

OPERATING PANEL



In the operating panel the touchpanel with PLC is situated. The PLC controls the Pallet loader. The touchpanel shows information about the status of the system. By touching certain parts of the touchpanel, depending on the chosen button or screen, the system is controllable, process settings can be changed or information becomes visible on the screen.

	**DANGER!** Although a lot of safety measures are built into the control of the system, Prinzen cannot guarantee that no dangerous situations will occur. Before you start the system, make sure no persons are in danger.
	**DANGER!** By working on a higher operating level, you have more possibilities to control the system manually. Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.
	**ATTENTION!** By working on a higher operating level, you have more possibilities to control the system manually. When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.

	**ATTENTION!** Do not damage parts of the system with pallets, dividers or trays during manual control of the system. Parts may start to move so that pallets, dividers and trays are jammed which may damage these parts.
	**ATTENTION!** It is not necessary to press real hard on the Touch Panel. We advise against doing this because it may damage the Touch Panel. It is forbidden to press on the Touch Panel with (sharp) objects because this may also damage the Touch Panel.

Emergency stop button:
After pushing the red button, the system stops immediately. Only use this button in case of emergencies.

	**TIP!** Only use the emergency stop button for real emergencies. Follow the normal stop procedure to stop the system.

When somewhere on the system an emergency button is pressed, you have to reset and start the system again by pressing the reset and the start button on this main operating panel.

Start:
By pressing the start button, the system starts to run. The light inside the button turns ON.
When the stop button is pressed, the light inside the start button starts FLASHING until the complete system is stopped.

Stop:
By touching the stop button, you will stop the system. The system stops after finishing certain internal controlling cycles. Thus it may take some time before the system is completely stopped. This is the normal procedure to stop the system. Pressing the button twice stops the system immediately.

Reset:
After a breakdown, first the breakdown needs to be solved. During a breakdown, the light inside the reset button FLASHES. After solving the breakdown and pressing the reset button, the controller verifies if all breakdowns are solved. When this is the case, the light inside the reset button turns OFF. Now it is possible to start the system by pressing the start button again.

INDICATOR LIGHT

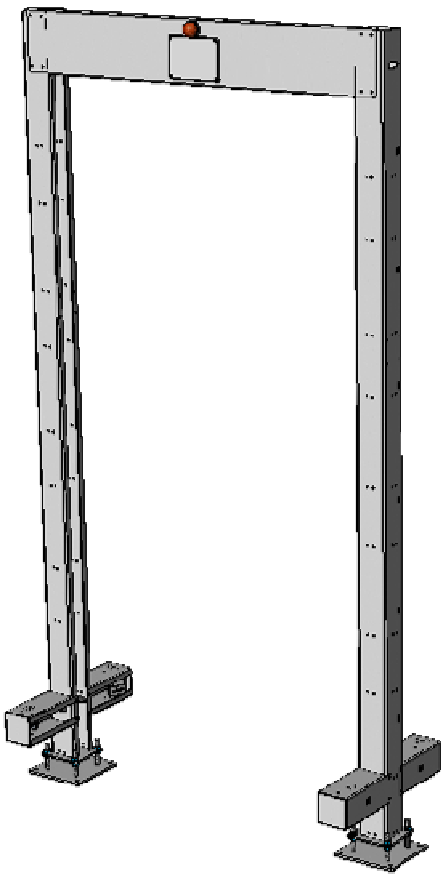
Above the pallet loader an indicator light indicates the status of the pallet loader:

Green:	System is running.
Red:	Breakdown.
Yellow:	System is in the manual mode.

When more colors are flashing in turns, there is more than 1 status. For example: Green and yellow: Part of the system is running and part of the system is in the manual mode.

BUZZER

Underneath the operating panel a buzzer is positioned to attract the operator's attention. After starting the system, the buzzer emits a long beep.
When the system needs assistance, the buzzer emits a short beep and an alarm or a message appears on the touchpanel.



MUTING LIGHT

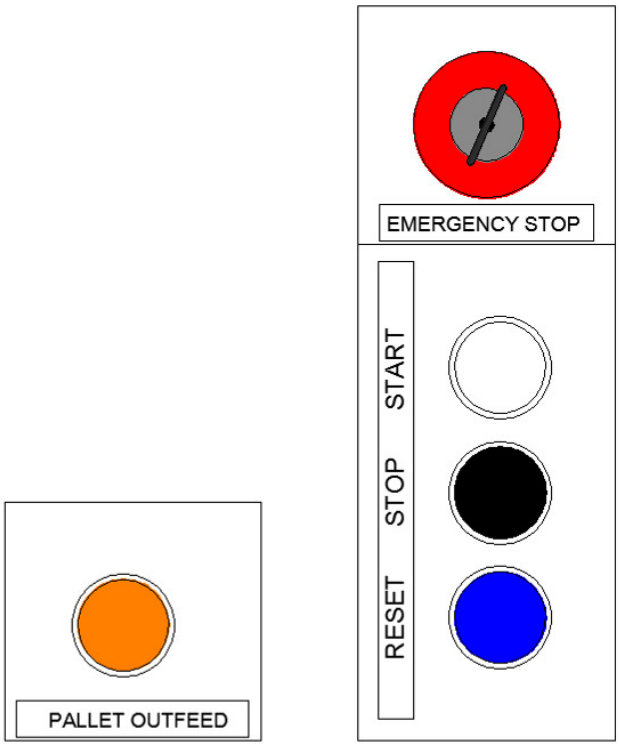
A safety screen is positioned around the pallet outfeed conveyors. Above this safety screen a muting light indicates the status of this safety screen:

Green:	Muting mode disabled. Safety screen is operational.
Yellow:	Muting mode activated. A pallet interrupts the safety screen. It is allowed to pass through.
OFF:	Safety screen is interrupted.

LOCAL OPERATION

DANGER!
Before entering the pallet loader always push the safety key emergency button and keep the safety key in your possession while you are inside the system.

TIP!
Only use the emergency button for real emergencies. Follow the normal stop procedure to stop the system.



DANGER!
Make sure nobody is present inside the pallet loader before resetting an interrupted safety screen!

DANGER!
Make sure the pallet is completely removed from the pallet outfeed conveyor. A next pallet may knock down the previous pallet causing permanent injury to the operating personnel!

OPERATING PANEL NEAR PALLET OUTFEED

Emergency stop:
After pushing the red button, the system stops immediately. Only use this button in case of emergencies. Start the system with the start button on the main operating panel.
This emergency button is equipped with a safety key. Releasing this emergency button is only possible with this key.

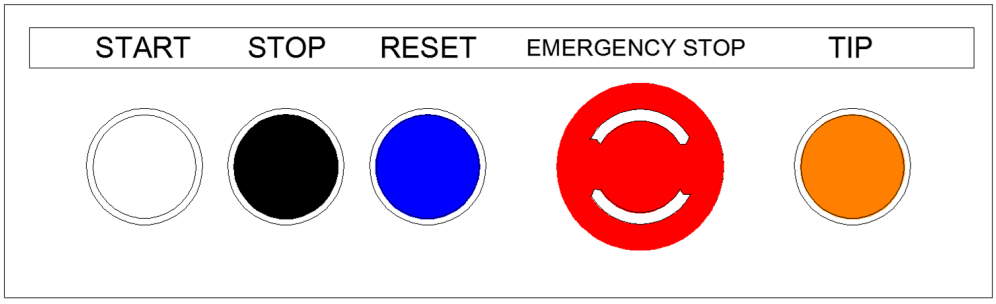
Start:
When the fork support/fork carriage or pallet outfeed conveyors are stopped (breakdown or interrupted safety screen), it is possible to start these units by pressing this start button. The light inside the button turns ON.
When the stop button is pressed, the light inside the start button starts FLASHING until all these units are stopped.

Stop:
By touching the stop button, you will stop the fork carrier, fork support and the pallet outfeed conveyors. They stop after finishing certain internal controlling cycles. Thus it may take some time before these units are completely stopped. Pressing the button twice stops the units immediately.

Reset:
After an interrupted safety screen, the light inside this reset button FLASHES. After pressing this reset button, the controller verifies if the safety screen is no longer interrupted. When this is the case, the light inside the reset button turns OFF. Now it is possible to start the fork carrier, fork support and pallet outfeed conveyor(s) again by pressing the local start button.

Pallet outfeed:
When a full pallet has arrived at the end of the pallet outfeed conveyor(s) it should be removed by the operating personnel. As soon as the pallet is lifted up with a fork lift, the light inside the pallet outfeed button starts flashing. First remove the pallet completely from the pallet outfeed conveyor and after this, press the pallet outfeed button to confirm that the pallet is really removed. The light inside the button turns OFF, and the pallet loader can discharge the next full pallet.

OPERATING TOP TRAY DENESTER



Emergency stop:
After pushing the red button, the system stops immediately. Only use this button in case of emergencies. Start the system with the start button on the main operating panel.

TIP!
Only use the emergency stop button for real emergencies. Follow the normal stop procedure to stop the system.

Start:
When the top tray denester is stopped (breakdown), it is possible to start this unit by pressing this start button. The light inside the button turns ON
When the stop button is pressed, the light inside the start button starts FLASHING until this unit is stopped.

Stop:
By touching the stop button, you will stop the top tray denester. It stops after finishing certain internal controlling cycles. Thus it may take some time before the top tray denester is completely stopped. Pressing the button twice stops this unit immediately.

Reset:
After a breakdown of the top tray denester only the top tray denester stops. First the breakdown needs to be solved. During a breakdown, the light inside this reset button FLASHES. After solving the breakdown and pressing the reset button, the controller verifies if the breakdown is solved. When this is the case, the light inside the reset button turns OFF. Now it is possible to start the top tray denester by pressing the start button on the operating panel of the top tray denester.

Tip:
For adjustment and test purposes it is possible to manually control the top tray denester by pressing the TIP button.
When the system is started, pressing the TIP button sets the top tray denester into the manual mode.
In the manual mode, shortly pressing the TIP button starts and stops the denester movement.
In the manual mode, when holding the TIP button, the denester makes one cycle and stops.
To set the top tray denester back into the automatic mode, just press the start button on the operating panel of the top tray denester.

OPERATING SCREENS

After switching on the system with the main switch the start-up screen appears.

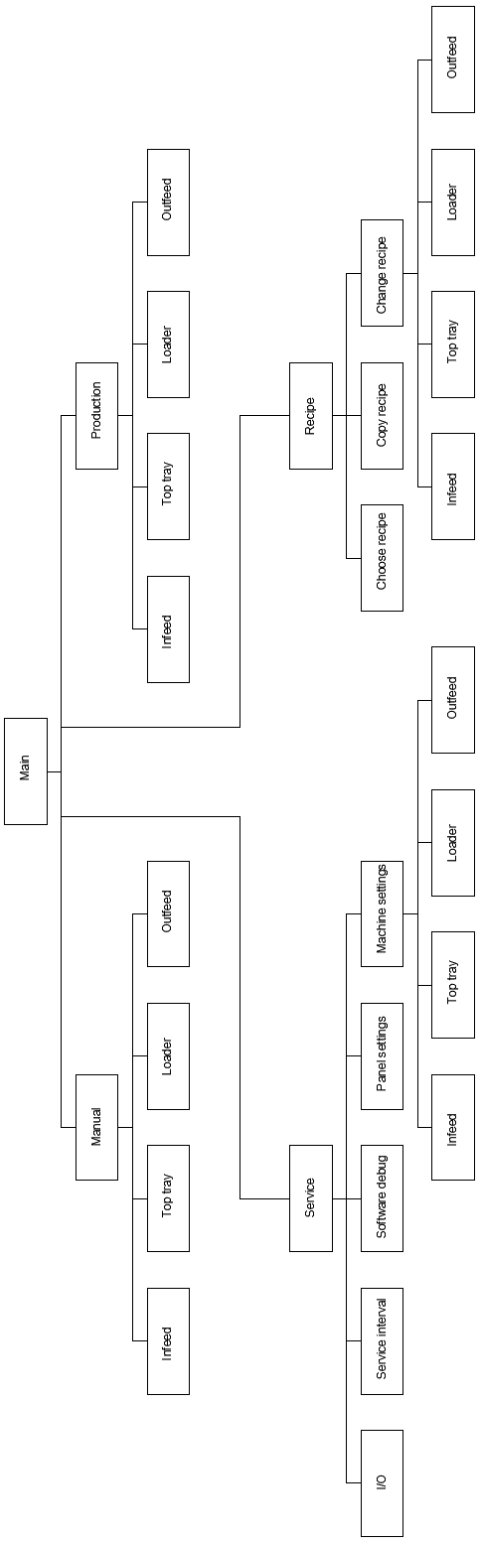
After touching this (1) button the main screen appears.

KEYPAD

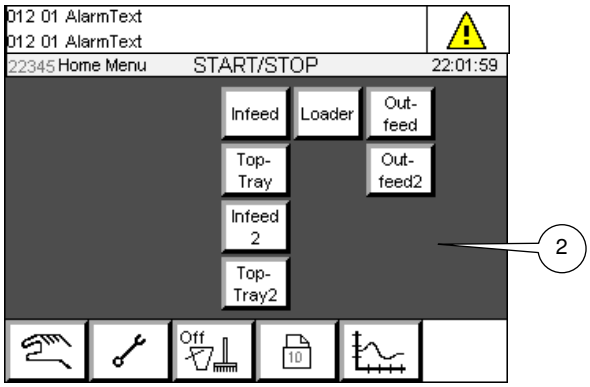
After touching yellow windows, the alongside keypad appears. Enter a correct value and confirm it with the V button.

OPERATING TREE

The below picture gives an overview of the present menus and screens and the how to find a particular screen.



TOUCHPANEL COLORS

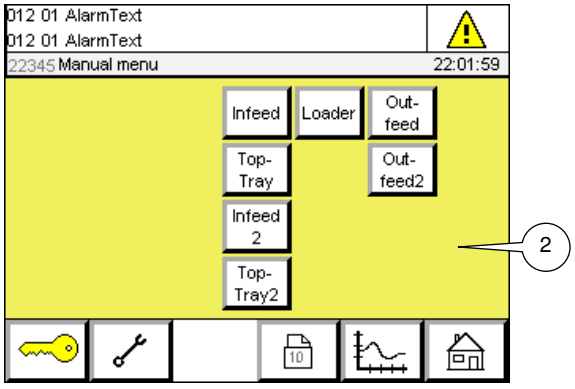


The background color (2) of a screen represents the possibility of changing the mode of units:

Dark gray:
This color is only present on the main screen. Touching a button in this screen immediately starts or stops a unit.

Yellow:
This color is only present on the manual menu. Touching a button in this screen immediately sets a unit into the manual mode.

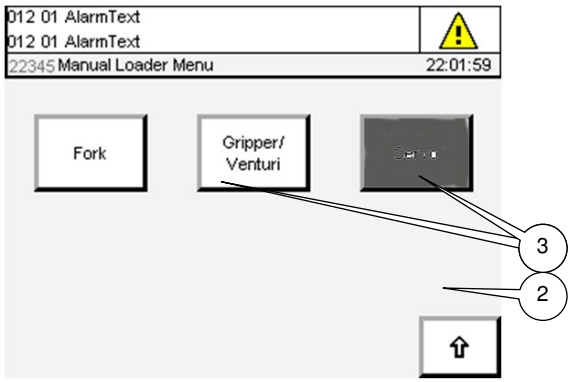
Light grey:
This color is present on all other screens. Touching a button in this screen does not change the mode of a unit.

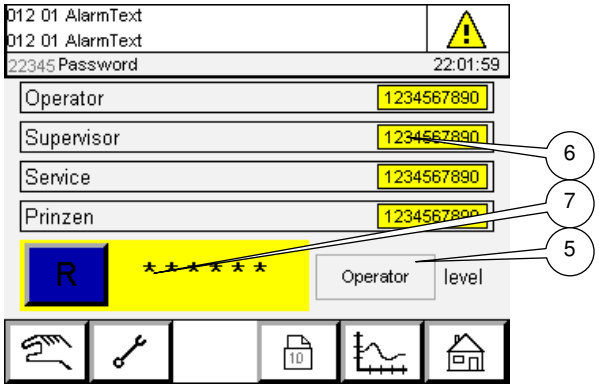


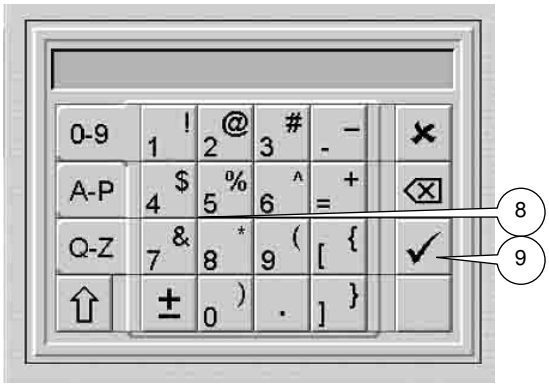
The color of the buttons (3) in the screens (except the main screen) represent the operating level of the buttons.

White:
When a button is white, the current operating level is high enough for entering the submenu or activating the button's functionality.

Black:
When a button is black, the current operating level is too low for entering the submenu or activating the button's functionality. To be able to use black button you have to change the operating level.







PASSWORD SCREEN

Here you can enter your password. Depending on the operating level you get the possibility to change settings of the system and/or move parts of the system manually. Passwords will be handed over to certain dedicated persons within your company.

ATTENTION!
It is not allowed to use the Prinzen password. With the Prinzen operating level it is possible to change settings that may damage the system.

The level window (5) shows the current operating level. For the lower operating levels the passwords are also visible. After touching a visible password (6), a keypad pops up in which it is possible to change the password.

ATTENTION!
Never create the same password for 2 different operating levels.

After touching the password window (7) a keypad appears (8). After entering the correct password and confirming it with the V button (9) the operating level changes.

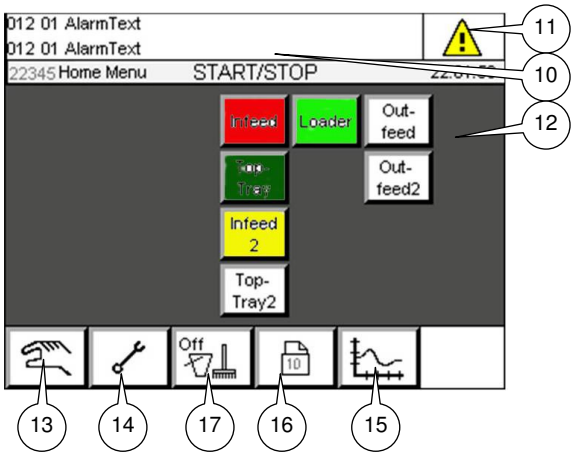
DANGER!
By working on a higher operating level, you have more possibilities to control the system manually. Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.

ATTENTION!
By working on a higher operating level, you have more possibilities to control the system manually. When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.

ATTENTION!
By working on a higher operating level, you have more possibilities to control the system manually. Using the manual buttons may result in damaging pallets, dividers, trays, eggs and machine parts. We advise you to remove all pallets, dividers and trays from the system before starting to use these buttons.

ATTENTION!
By working on a higher operating level, you have the possibilities to change parameter settings. This may result in malfunctioning and even damage of the system.

ATTENTION!
The manual screens should only be used by advanced users of the system like Prinzen engineers for testing the system.



MAIN SCREEN

In the main screen the operator is able to control the system. On the main screen the following information is visible:

Alarm message line (10):
On the top of the screen the alarm messages may appear when the system needs assistance. See alarm messages for possible alarms that may popup.

Alarm screen (11):
On all screens the alarm screen button is available. After touching this button you will enter the alarm screen.

Buttons (12):
With the buttons it is possible to switch parts of the system ON or OFF. Beside this the buttons indicate the status of these units:

White:	Unit is not running.
Light green:	Unit is running.
Dark green:	Unit is initializing
Red:	Unit has a breakdown.
Yellow:	Unit is in the manual mode.

Notice the background color of this screen. It is dark gray. After touching a button in this screen immediately starts or stops the selected part of the system.

Top tray:
After touching the top tray button, the top tray denester is switched ON.

Infeed:
After touching the infeed button, the infeed conveyor is switched ON.

Loader:
After touching the loader button, the fork carrier / fork support are switched ON.

Outfeed:
After touching the outfeed button, the pallet outfeed conveyor(s) are switched ON.

Manual submenu (13):
After touching this button the manual menu appears in which it is possible to manually control parts of the system.

Service submenu (14):
After touching this button the service menu appears. In this menu the operator is able to change a number of settings using submenus.

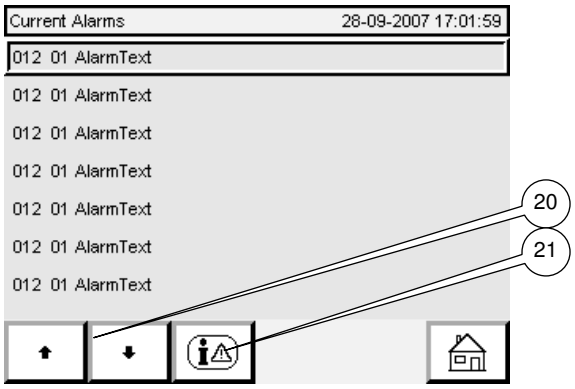
Production menu (15):
After touching this button the production menu appears. In this screen the performance of the system (amount of loaded pallets, …) is visible.

Recipe (16):
All the settings that are used by the system to load pallets are stored in a recipe. It is possible to make several different recipes for pallet / divider / tray types.
After touching this button the recipe menu appears. Via this menu it is possible to choose, copy or change an actual recipe.

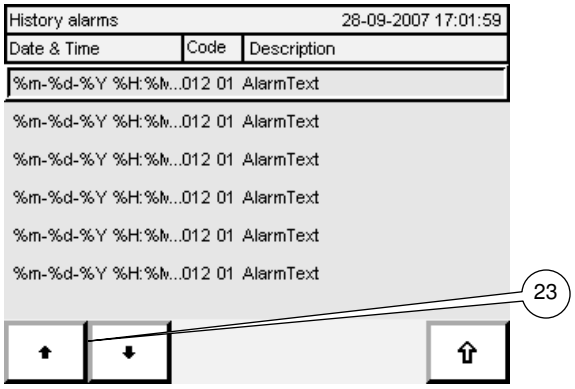
Run empty (17):
After touching this button first the conveyors (stacker, buffer and infeed) start to run until all stacks are removed by the fork carrier / fork support which places these stacks on the pallet.
Then the fork carrier / fork support moves to its park position (fork support up, fork carrier normally above infeed conveyor).
Depending on the chosen recipe setting, the pallet with stacks remains on the pallet stack position or it is transferred to the pallet discharge position.

Operator assistance:
Besides the alarms, on the top of the screen also an operator assistance screen may pop-up. This may happen after scanning a pallet stack position when the operator needs to inform the controller about the presence of a divider on the stacked pallet.
When such a screen appears, touch the arrow button (18) to view the possible information the system needs. Look in the system for the status of the system and touch the applicable text and subsequently the Confirm button

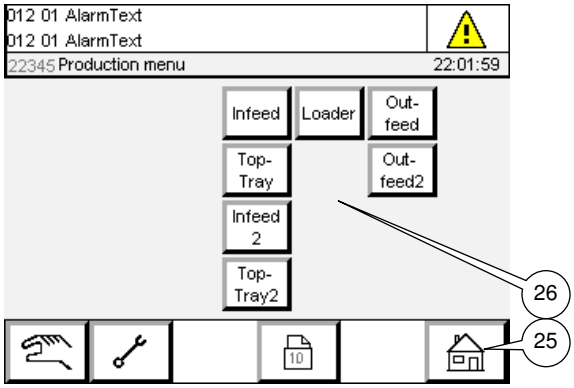
ALARMS SCREEN



The Alarms current screen shows all present alarms from the system including its alarm code. Use this alarm code to find this alarm and its corresponding cause and action to solve the error in the trouble shooting guide.
By touching the up- or down arrows (20) it is possible to scroll through the alarm list.
An active alarm is colored red.
After touching the alarm history button (21) the alarm history screen appears.

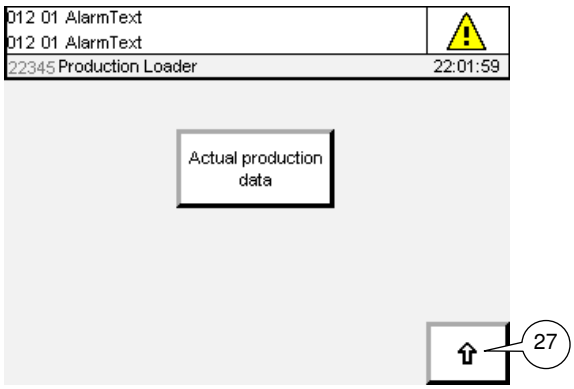


Submenu Alarm history:
The Alarm history screen shows the history of all alarms from the system.
By touching the up- or down arrows (23) it is possible to scroll through the alarm list.



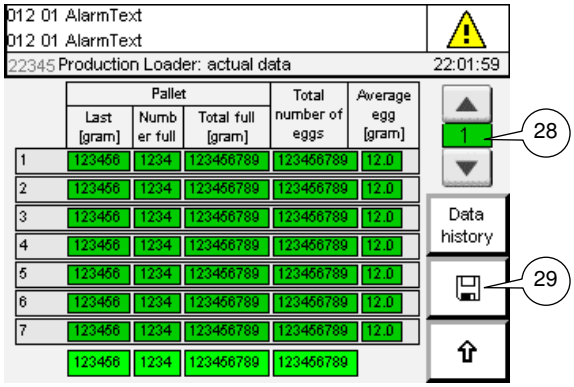
PRODUCTION MENU

Main screen (25):
On some of the screens in the right bottom corner this home button is present. After touching it the main screen appears.
Buttons (26):
After touching one of the buttons, the performance data of the particular unit appears. At the moment there is only performance data of the loader present.



PRODUCTION SCREEN LOADER

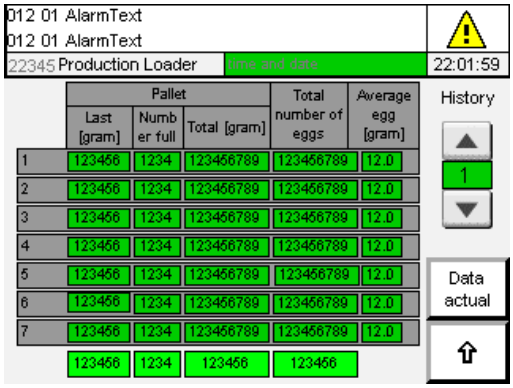
Previous (27):
On some of the screens in the right bottom corner this up arrow button is present. After touching it the previous screen appears.
Actual production data:
After touching this button the production data of the loader appears.



ACTUAL DATA

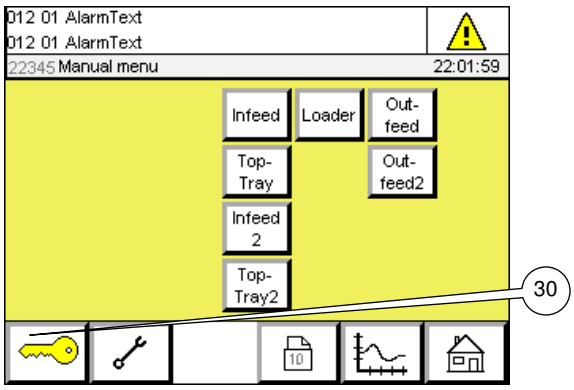
Part of the information in this screen is only displayed when the optional infeed conveyor weighing unit is present in the pallet loader

Pallet selection (28):
Select the pallet or day from which you want to see the performance data.
Data history:
After touching this button the production data history screen appears.
Save (29):
After touching this button the production data copied to the data history and the actual data is reset.



DATA HISTORY

Here you can view the production data history. With the arrow buttons it is possible to scroll through the list.



MANUAL MENU

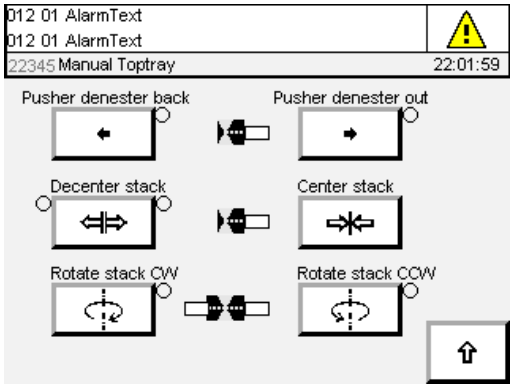
Here it is possible to select a certain unit and, with the appearing screen, control parts of that unit manually.
Notice the background color of this screen. It is yellow. After touching a button in this screen immediately sets the selected part of the system into the manual mode.

Top tray:
After touching this button, the top tray denester manual screen appears.
Infeed:
After touching this button, the infeed manual screen appears.
Loader:
After touching this button, the loader manual screen appears.
Outfeed:
After touching this button the outfeed manual screen appears.

With the manual screens it is also possible to verify correct functioning of sensors, motors and valves. These are depicted in these screens. Whenever a sensor detects something or a motor or a valve is activated, it colors yellow or green.

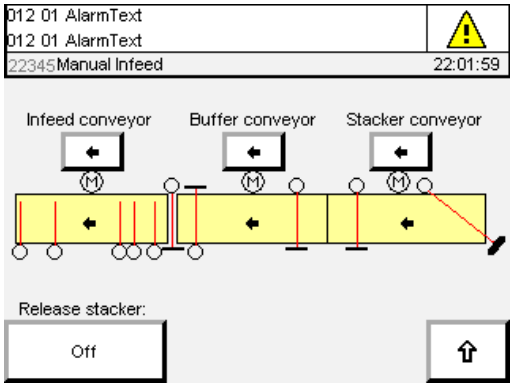
Password screen (30):
After touching this button the password screen appears in which it is possible to change the operating level of the system.

	**DANGER!** Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.
	**ATTENTION!** When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.
	**ATTENTION!** Using the manual buttons may result in damaging pallets, dividers, trays, eggs and machine parts. We advise you to remove all pallets, dividers and trays from the system before starting to use these buttons.
	**ATTENTION!** The manual screens should only be used by advanced users of the system like Prinzen engineers for testing the system.



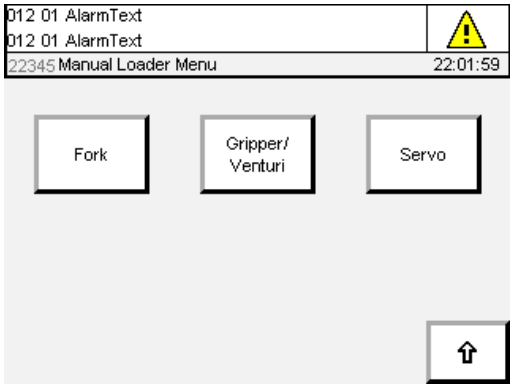
TOP TRAY DENESTER MANUAL SCREEN

Pusher denester back/Pusher denester out:
With these buttons it is possible to move the pusher above the stack (out) or back underneath the tray denester.
Denester stack / Center stack:
With these buttons it is possible to close the centering unit (center stack) of open the centering unit (denester stack).
Rotate stack CW / rotate stack CCW:
With these buttons it is possible to rotate the centering unit Clock Wise (CW) or Counter Clock Wise (CCW).



INFEED MANUAL SCREEN

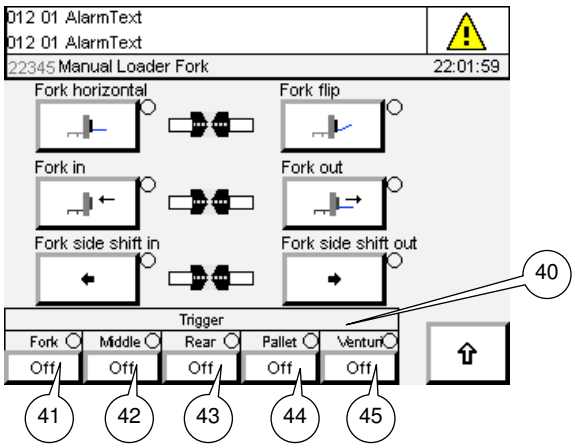
Stacker conveyor:
After touching this arrow button, the conveyor underneath the top tray denester starts to run as long as this button is touched.
Buffer conveyor:
After touching this arrow button, the buffer conveyor starts to run as long as this button is touched.
Infeed conveyor:
After touching this arrow button, the infeed conveyor starts to run as long as this button is touched.
Release stacker ON / OFF:
When, for whatever reason, the pallet loader is not able to run, it is still possible to run the upstream speedpack with PS4 tray stacker. However, the stacks should be manually removed from the infeed conveyors.
To run the speedpack without the pallet loader, switch the release stacker ON.
Starting the infeed automatically switches the release stacker OFF again.

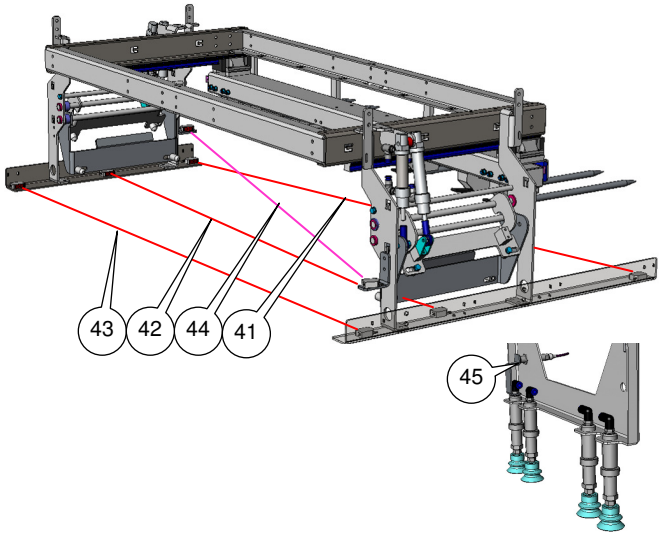


LOADER MANUAL SCREEN

Here it is possible to select a certain part of the loader and, with the appearing screen, control that part of the loader manually.

Fork:
After touching this button, the fork manual screen appears.
Gripper / Venturi:
After touching this button, the gripper / venturi manual screen appears.
Servo:
After touching this button, the servo manual screen appears.



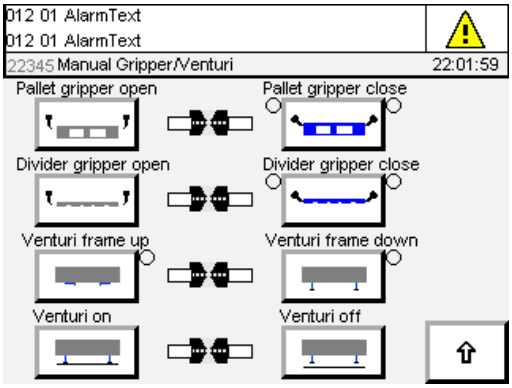


FORKS

In this screen it is possible to control the forks of the fork support.
Before starting manual control make sure it is safe to do so (forks cannot damage trays, dividers or pallets or collide with other machine parts).
Forks horizontal / flip:
With these buttons it is possible to activate the tilting movement of the forks.
Forks in / out:
With these buttons it is possible to activate the retracting/extending movement of the forks.
Forks side shift in / out:
With these buttons it is possible to activate the side shift movement of the forks.

ATTENTION!
Before starting manual control make sure it is safe to do so (forks cannot damage trays, dividers or pallets or collide with other machine parts)!

Test sensors (40):
Here it is possible to test the sensors in the fork support that detect the rows (41, 42, 43), the pallet (44) and the carton divider (45).
First switch a particular sensor ON by touching the ON/OFF button and after this activate the sensor manually (put something in between the transmitter and receiver). Its circle should turn green. The sensor is switched OFF automatically after leaving this screen.



ATTENTION!
Before starting manual control make sure it is safe to do so (grippers cannot damage trays, dividers or pallets or collide with other machine parts)!

GRIPPERS

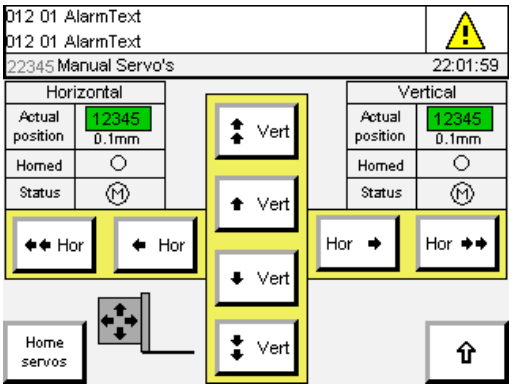
In this screen it is possible to control the grippers of the fork support.
Before starting manual control make sure it is safe to do so (grippers cannot damage trays, dividers or pallets or collide with other machine parts).

Pallet gripper open/close:
With these buttons it is possible to activate the movement of the bottom pallet grippers.

Divider gripper open/close:
With these buttons it is possible to activate the movement of the top divider grippers.

Venturi frame up/down:
With these buttons it is possible to control the position of the venturi frame.

Venturi on/off:
With these buttons it is possible to switch the vacuum for the picking up carton dividers ON or OFF.



SERVO

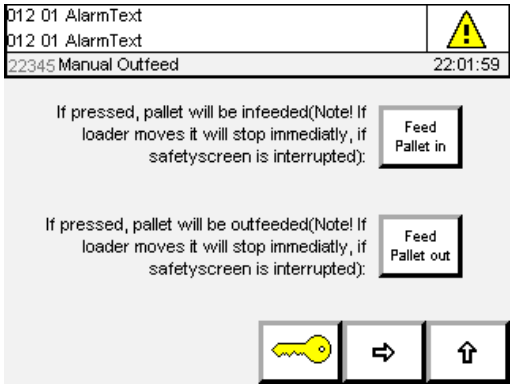
In this screen it is possible to control the fork carrier and the fork support manually.
Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts).

Horizontal:
With the left/right arrow buttons it is possible to move the fork carrier left/right as long as a button is touched. One arrow is a slow movement, two arrows is a faster movement.

Vertical:
With the up/down arrow buttons it is possible to move the fork support up/down as long as a button is touched.

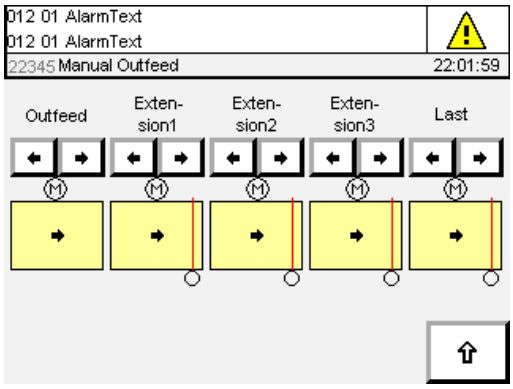
Home servos:
With this button it is possible to move the loader to its initial position. Keep this button touched until both the fork support (vertical) and the fork carrier (horizontal) are homed (both home indication circles should be green).

ATTENTION!
Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!



OUTFEED MANUAL MENU

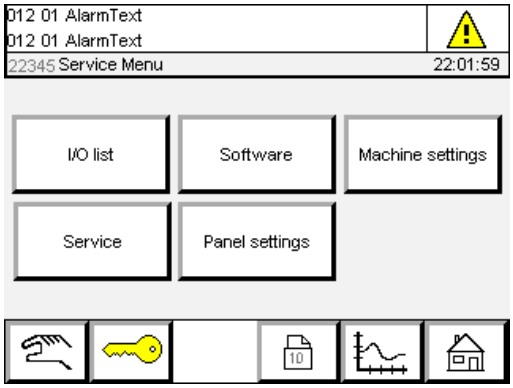
Feed pallet in:
As long as this button is touched, the outfeed conveyor supplies a pallet to the pallet stack position. Keep holding the button until the pallet is stopped automatically.
Feed pallet out:
As long as this button is touched, the outfeed conveyor removes the pallet from the pallet stack position to the end of this conveyor where it can be removed with a forklift or a hand pallet truck. Keep holding the button until the pallet is stopped automatically.



OUTFEED MANUAL SCREEN

The extension buttons and last buttons in this screen are only displayed when the multiple outfeed conveyors are present in the pallet loader

Outfeed:
With these buttons it is possible to control the outfeed conveyor manually. After touching one of the arrow buttons, the conveyor moves forwards or backwards as long as a button is touched.
Extension:
With these buttons it is possible to control the extension conveyor manually. After touching one of the arrow buttons, the conveyor moves forwards or backwards as long as a button is touched.
Last:
With these buttons it is possible to control the last conveyor manually. After touching one of the arrow buttons, the conveyor moves forwards or backwards as long as a button is touched.

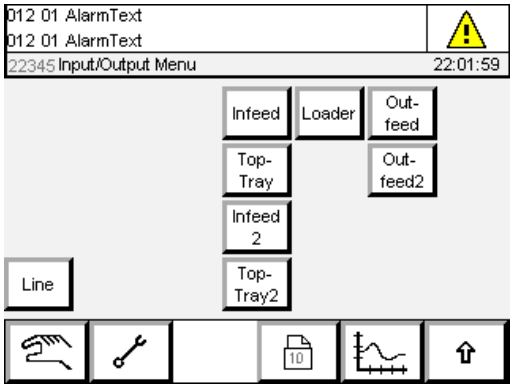


	ATTENTION! Changing parameter settings may result in malfunctioning and even damage of the system.
	ATTENTION! The service screens should only be used by advanced users of the system like Prinzen engineers for testing the system.

SERVICE MENU

In this menu the user of the system is able to change a number of settings using submenus. Not all submenus are available for the operator or the supervisor.

I/O list:
After touching this button the I/O menu appears. Via this menu it is possible to view the status of all the inputs (sensors) and outputs (motors, valves).
Service:
After touching this button the Service interval screen appears. In this screen it is possible to enter service message which will appear on the touchpanel when its set interval counter has elapsed.
Software debug:
After touching this button the software debug screen appears. This screen shows information about the status of the software.
Machine settings:
After touching this button the machine settings menu appears. In the submenus of the machine settings menu it is possible to change parameters that control the system.
Most of these submenus are not available for the operator and the supervisor.
Panel settings:
After touching this button you will enter the panel settings menu in which it is possible to change touchpanel settings. Some submenus are not available for the operator and supervisor.

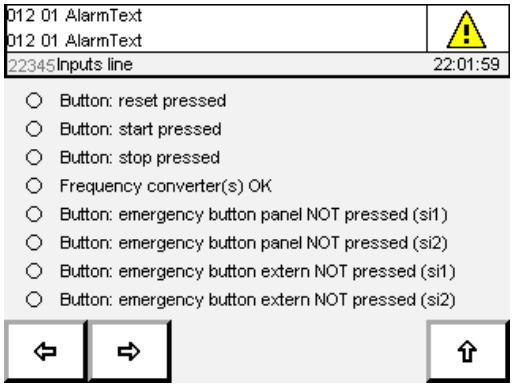


I/O MENU

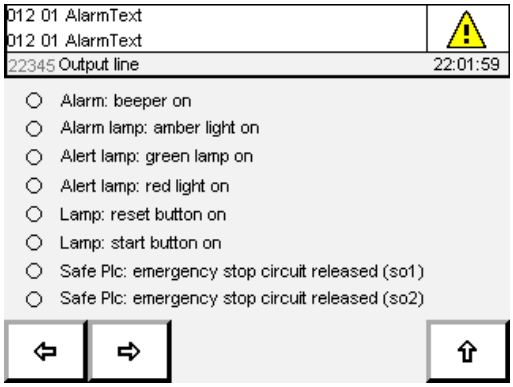
Here it is possible to select a certain unit and with the appearing screen view the status of its inputs (sensors) and outputs (motors, valves).

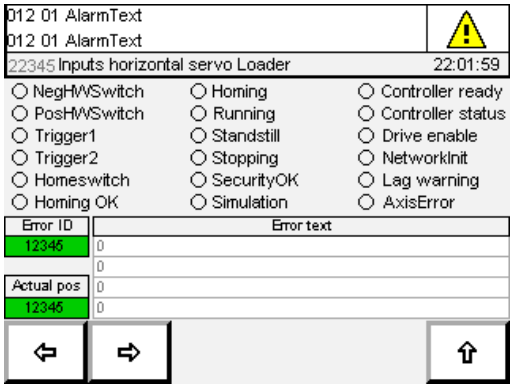
After touching a particular unit, first the inputs of this unit are displayed. With the left/right arrow buttons it is possible to view the outputs of the particular unit.

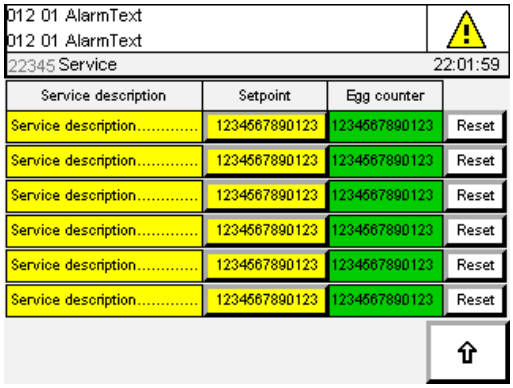
As an example, below the inputs and outputs of the line are shown.



In this screen it is possible to view the status of the inputs (sensors) and outputs (motors, valves).
When the circle in front of the input is green, then the input is ON (for example: the stop button is pressed).
When the circle in front of the input is not green, the input is OFF (for example: the stop button is NOT pressed).



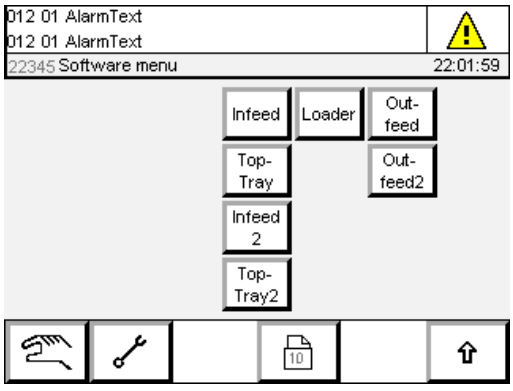




SERVICE INTERVAL

In this screen it is possible to enter a service action message and an interval counter for this message.

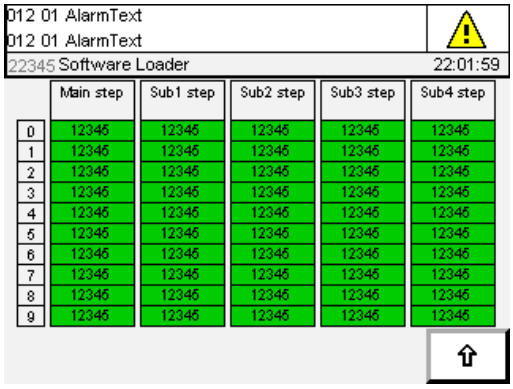
Service description:
After touching this window a key-pad appears. Enter a service action message, for example: grease rod ends.
Set point:
Enter the service interval. This is an amount of handled eggs. After the entered amount of eggs has passed, the service action message appears on the touchpanel.
Egg counter:
Here the amount of handled eggs since the last reset is displayed.
Reset:
When a service action message appears on the touchpanel, first perform the service action and after this touch the corresponding reset button. Its egg counter will be reset.

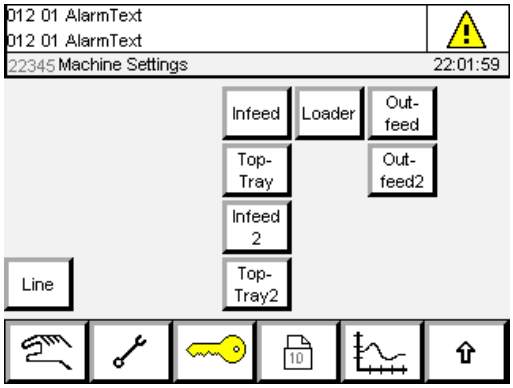


SOFTWARE MENU

Here it is possible to select a certain unit and in the appearing screen view information about the status of the software.

The software screens show information about the status of the software and are intended to be used by experienced users of the system like software engineers or Prinzen service engineers.
During contact with a Prinzen service engineer to solve a breakdown, you may be asked to pass on information from these screens.



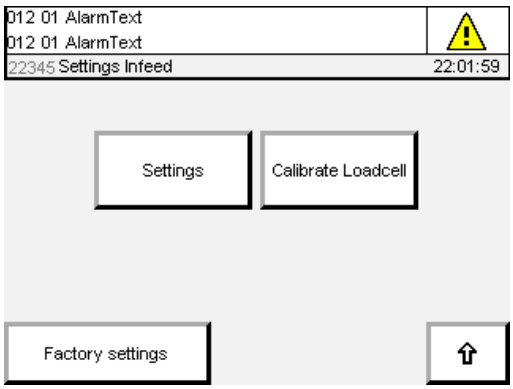


	ATTENTION! Changing machine settings may result in malfunctioning and even damage of the system.
	ATTENTION! The machine settings screens should only be used by advanced users of the system like Prinzen engineers for testing the system.

MACHINE SETTINGS MENU

Here it is possible to select a certain unit and in the appearing menus view or change the parameters that control that unit.

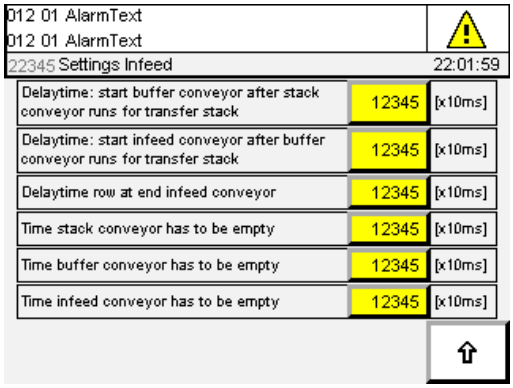
Top tray:
At the moment there is no settings screen for the top tray denester.
Infeed:
After touching this button, the infeed settings menu appears.
Loader:
After touching this button, the loader settings menu appears.
Outfeed:
At the moment there is no settings screen for the outfeed.



INFEED SETTINGS MENU

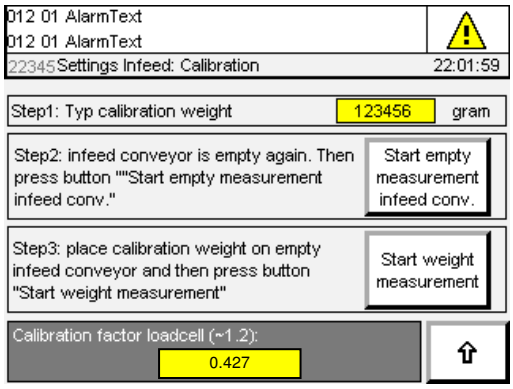
In this screen it is possible to view or change the parameter settings of the infeed.

Settings:
After touching this button, the infeed settings screen appears in which it is possible to view or change the parameter settings of the infeed.
Calibrate load cell:
After touching this button, the calibrate load cell screen appears in which it is possible to calibrate the load cell underneath the infeed conveyor.
Factory settings:
After touching this button, the factory settings of the infeed are restored. These settings are not immediately used, but are used after switching the system OFF and ON again. Then all changed parameter settings are lost!



INFEED SETTINGS SCREEN

Delay time: Start buffer conveyor after stack conveyor runs to transfer stack:
This parameter determines the timing for starting the buffer conveyor after the stacker conveyor starts running to transfer a stack of trays to the buffer conveyor.
Delay time: Start infeed conveyor after buffer conveyor runs to transfer stack:
This parameter determines the timing for starting the infeed conveyor after the buffer conveyor starts running to transfer a stack of trays to the infeed conveyor.
Delay time row at end infeed conveyor
This parameter determines the time that the infeed conveyor remains running after a stack of trays is detected at the end of the conveyor.
Time stack conveyor has to be empty:
When the stack conveyor runs for the set time, and no stack of trays is detected, this conveyor is assumed to be empty.
Time buffer conveyor has to be empty:
When the buffer conveyor runs for the set time, and no stack of trays is detected, this conveyor is assumed to be empty.
Time infeed conveyor has to be empty:
When the infeed conveyor runs for the set time, and no stack of trays is detected, this conveyor is assumed to be empty.

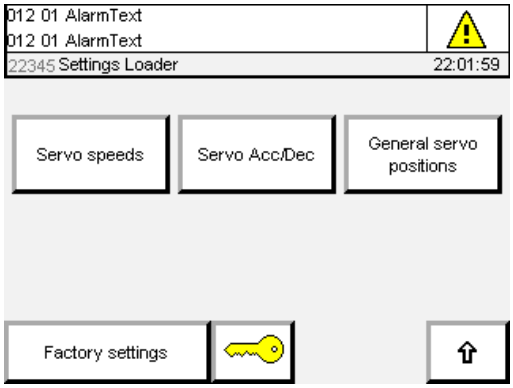


CALIBRATE LOADCELL

The alongside screen is used for calibrating a replaced load-cell. Follow the below instructions during calibrating a load-cell:

1. Make sure the infeed conveyor is empty and touch the “start empty measurement” button (step 2).
2. Enter the weight of a reference mass into the calibration weight input window (step 1).
3. Place the reference mass on the infeed conveyor and touch the “start weight measurement” button (step 3).
4. Now you have calibrated the load-cell.

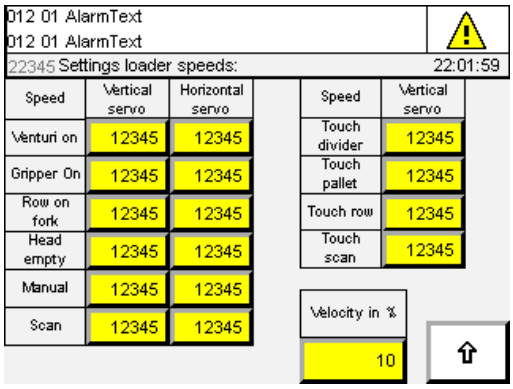
At the bottom of the screen, the calibration factor of the load cell is displayed. Here you can check if the load cell is correctly calibrated. The calibration factor should be around 0.4. When this is not the case you can (temporarily) enter 0,427 here to be able to run the system. However, you need to contact the Prinzen service department immediately because the load cell is not functioning correctly.



LOADER SETTINGS MENU

In this screen it is possible to view or change the parameter settings of the loader.

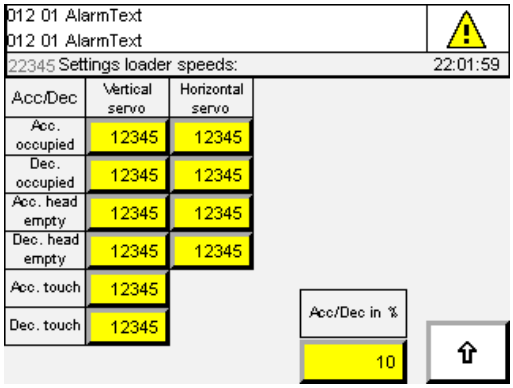
Servo speeds:
After touching this button, the servo speed screen appears in which it is possible to determine the speed of the fork carrier and fork support during its various movements.
Servo Acceleration / Deceleration:
After touching this button, the acceleration / deceleration screen appears in which it is possible to view or change the speed up and slow down settings of the fork carrier and the fork support during its various movements.
General servo positions:
After touching this button, the positions screen appears in which it is possible to view and change the various stop positions of the fork carrier and fork support.
Factory settings:
After touching this button, the factory settings of the loader are restored. These settings are not immediately used, but are used after switching the system OFF and ON again. Then all changed parameter settings are lost!



LOADER SERVO SPEEDS

In the alongside screen, the speeds of the fork carrier (horizontal) and fork support (vertical) during their movements to particular positions or during particular movements are displayed.

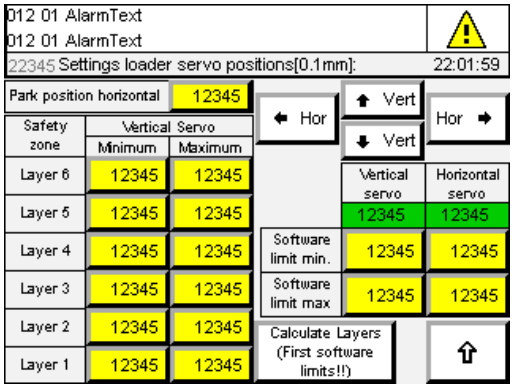
Velocity in %:
Normally this setting is 100%. For testing purposes it is possible to set this value in between 1% and 100%. When this value is set to 10%, the speed of all the movements of the loader are reduced to 10% of its normal speed.



LOADER ACCELERATION / DECELERATION

In the alongside screen, the acceleration and deceleration settings of the fork carrier (horizontal) and fork support (vertical) during their particular movements are displayed.

Acc/Dec in %:
Normally this setting is 100%. For testing purposes it is possible to set this value in between 10% and 100%. When this value is set to 10%, the acceleration and deceleration of all the movements of the loader are reduced to 10% of its normal acceleration and deceleration speeds.



LOADER SERVO POSITIONS

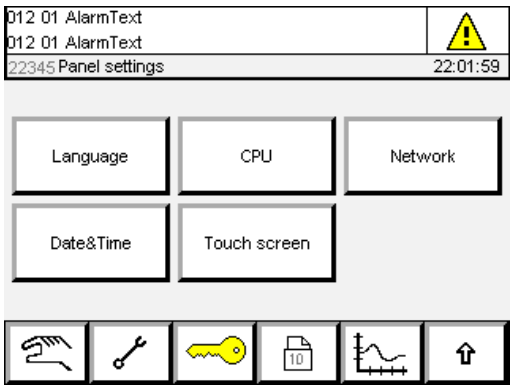
In the alongside screen, the stop positions of the fork carrier (horizontal) and fork support (vertical) for loading a pallet are displayed. Besides this, also the park position (for entering the pallet loader) and the maximum allowed positions are displayed here.

With the arrow buttons it is possible to manually move the fork carrier / fork support to certain positions.

The green windows show the actual positions of the fork carrier and fork support.

Calculate layers:
After entering the software limits for the vertical movement, you can touch this button and all layer heights are automatically calculated and shown in the table.

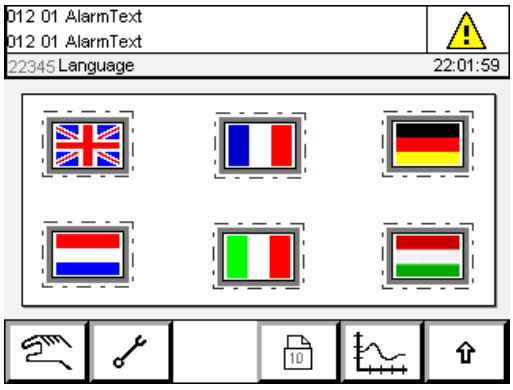
ATTENTION!
After using the calculate button, check all the calculated layers before starting to use this table. The calculated values may be incorrect when your vertical servo limits are faulty!



PANEL SETTINGS

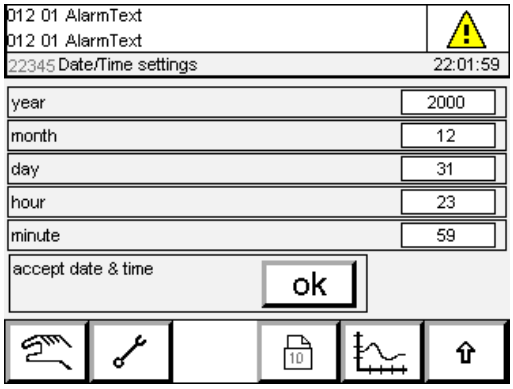
In this menu the user of the system is able to change touchpanel settings using submenus. Some of these submenus are not available for the operator and some are also not available for the supervisor.

Language:
After touching this button the language screen appears. In this screen it is possible to select the language of the touchpanel.
Date&Time:
After touching this button the Date&Time screen appears. In this screen it is possible to set the correct date and time. This screen is not available for the operator.
CPU:
After touching this button the CPU screen appears. This screen shows information about the status of the control system.
Touch screen:
After touching this button the touch screen settings screen appears. In this screen it is possible to adjust the contrast, the brightness and the orientation of the display. This screen is not available for the operator.
Network:
After touching this button the Network screen appears. In this screen it is possible to adjust the communication between the machine and (via the internet) an external computer. This screen is not available for the operator and the supervisor.



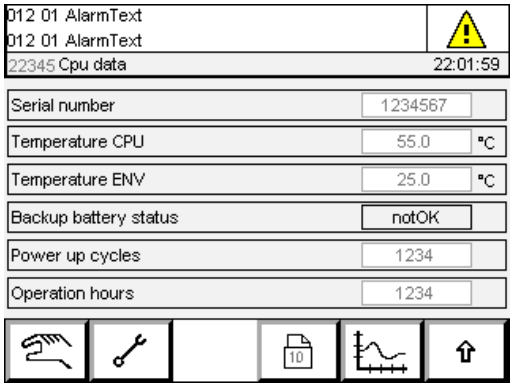
LANGUAGE

In this screen it is possible to select the language of the touchpanel.
Touch the flag that represents your native language.



DATE&TIME SCREEN

After touching year, month, day, hour or minute a keypad appears. Enter the correct date and time and confirm this with the V button. Now touch the button “accept date & Time” to activate the correct date and time.



CPU SCREEN

This screen shows information about the status of the control system.

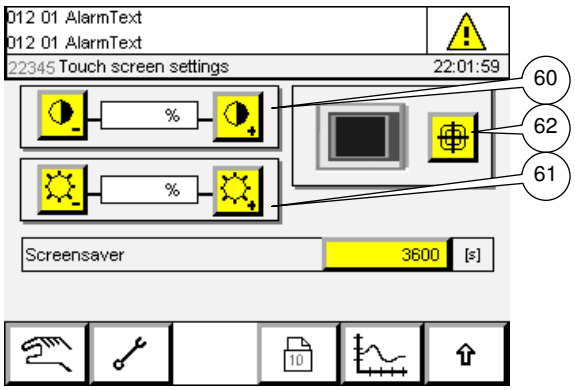
Serial number:
Here the serial number of the CPU is displayed. During contact with a Prinzen service engineer to solve a breakdown, you may be asked to pass on this serial number.

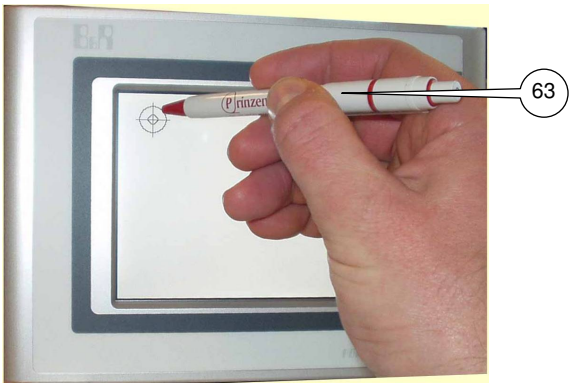
Temperature CPU/ENV:
Here the temperature of the CPU (Central Processing Unit) and its surrounding temperature is displayed.
Whenever the temperature rises too high, a message appears on the screen and the cabinet of the CPU needs to be cooled immediately.

Backup battery status:
The back-up battery status shows the status of the battery. When the battery becomes exhausted, not OK appears. In that case do not power off the system and contact Prinzen for the exchange procedure of the battery or see PLC battery replacement procedure.

Power up cycles:
The amount of power up cycles (switching ON the system) is displayed here.

Operation hours:
The time that the system was running production is displayed here.



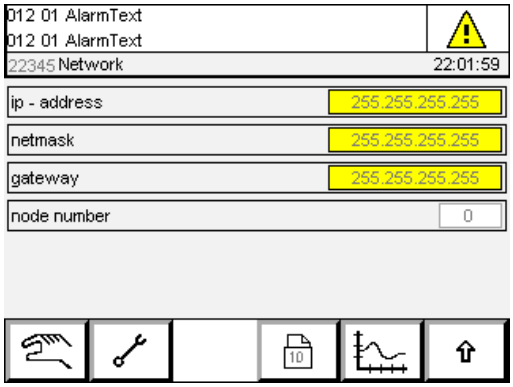


TOUCH SCREEN SETTINGS SCREEN

With the contrast buttons (60) it is possible to adjust the contrast of the display.
With the brightness buttons (61) it is possible to adjust the brightness of the display.
After touching the orientation button (62) you can calibrate the touchpanel part of the display. Dots appear on the screen. Touch these dots with a pointed (but not sharp!) object (63). After touching the last dot, the touchpanel part of the display is calibrated.

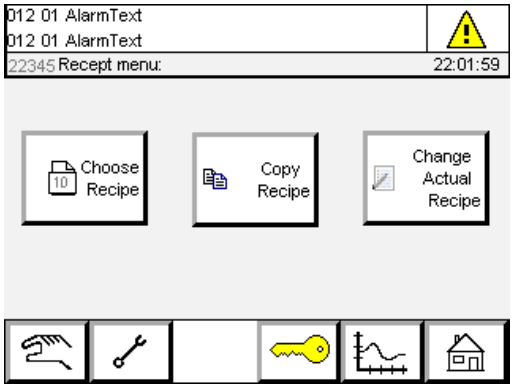
	ATTENTION! It is forbidden to press on the Touch Panel with sharp objects because this may also damage the Touch Panel.
	TIP! The touchpanel is calibrated in the factory. Because of this, normally it is not necessary to calibrate the touchpanel.

Screensaver:
Here you can enter the time that the touchpanel should be active after its latest touch. After this time has elapsed, the screen saver is activated.



NETWORK SCREEN

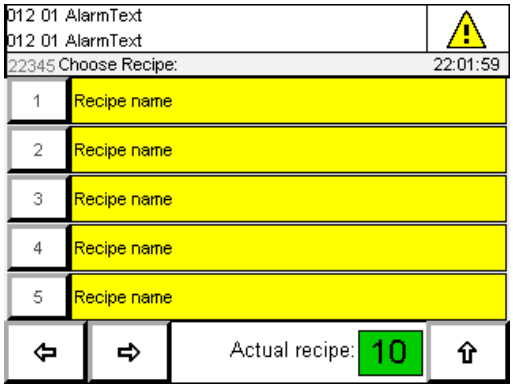
In this screen it is possible to enter the IP addresses to be able to communicate with an external computer via an Internet connection. Normally these addresses are entered by Prinzen engineers and are for information only. In case it is necessary to change these addresses ask your network administrator to do this.



RECIPE MENU

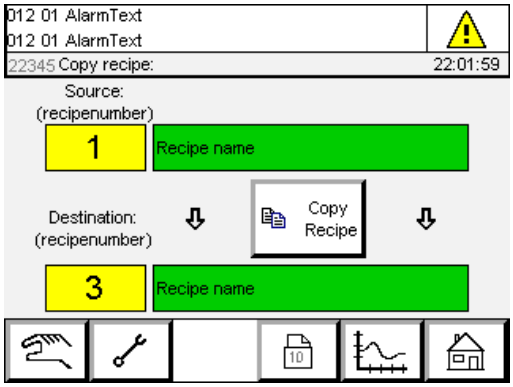
In a certain recipe all the settings for loading a particular pallet / divider / tray type combination stored. Via this menu the user of the system is able to select, copy or change a recipe using submenus.

Choose recipe:
After touching this button the choose recipe screen appears where it is possible to select a recipe.
Copy recipe:
After touching this button the copy recipe screen appears where it is possible to copy the parameter settings of a particular recipe to another recipe. This screen is not available for the operator.
Change actual recipe:
After touching this button the change recipe menu appears. Via this menu it is possible to change the parameter settings of the current recipe. This screen is not available for the operator.



CHOOSE RECIPE SCREEN

Here it is possible to select a different recipe. After touching a particular recipe the parameter settings of this recipe are used to control the pallet loader.
After touching a recipe name, a keypad pops up after which it is possible to change the recipe name.
Ten recipes are available. Use the arrow button to scroll to the next 5 recipes.

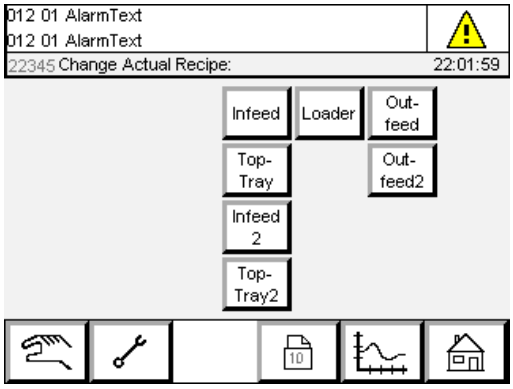


COPY RECIPE SCREEN

Here it is possible to copy the settings of a particular recipe to another recipe. This way it is possible to make a new recipe. First copy an existing recipe to a new recipe and after that start to change the new recipe settings via the change actual recipe menu.

To copy a recipe follow the below procedure:
1. Select the source recipe.
2. Select the destination recipe.
3. Touch the copy recipe button.

Now the settings of the source recipe are copied to the destination recipe. Change the name of the new recipe in the choose recipe screen.



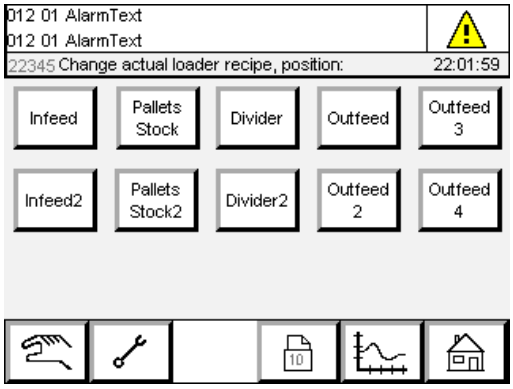
CHANGE RECIPE MENU

Here it is possible to select a certain unit and in the appearing menus view or change the recipe settings of that unit. Changed settings are immediately used by the system.

Top tray:
At the moment there is no recipe for the top tray denester.
Infeed:
After touching this button, the change recipe infeed screen appears.
Loader:
After touching this button, the change recipe loader menu appears.
Outfeed:
After touching this button, the change recipe outfeed screen appears.

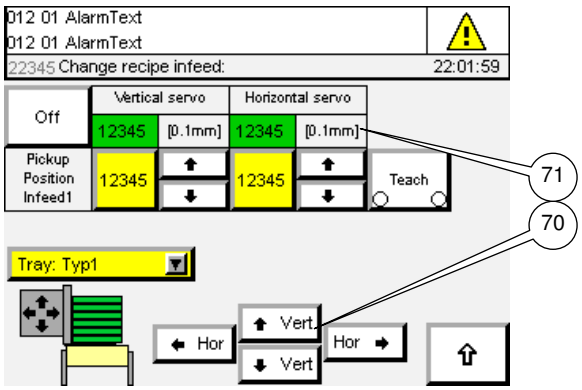
ATTENTION!
Changing parameter settings may result in malfunctioning and even damage of the system.

TIP!
Normally the parameters in these screens are factory set and do not need to be changed.



CHANGE LOADER RECIPE MENU

Infeed:
After touching this button, the change recipe infeed screen appears.
Pallet stock:
After touching this button, the change recipe pallet stock screen appears.
Divider:
After touching this button, the change recipe divider stock screen appears.
Outfeed:
After touching this button, the change recipe outfeed screen appears.

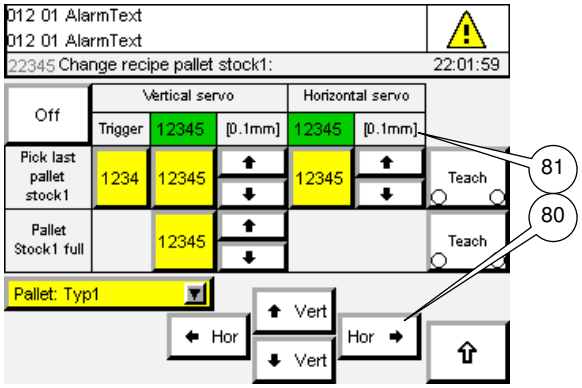


	ATTENTION! Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!
	ATTENTION! Make sure the saved value is a correct value. Incorrect values result in collisions between the fork support and pallets, dividers, trays or machine parts, resulting in damaged machine parts, pallets, dividers, trays and eggs!

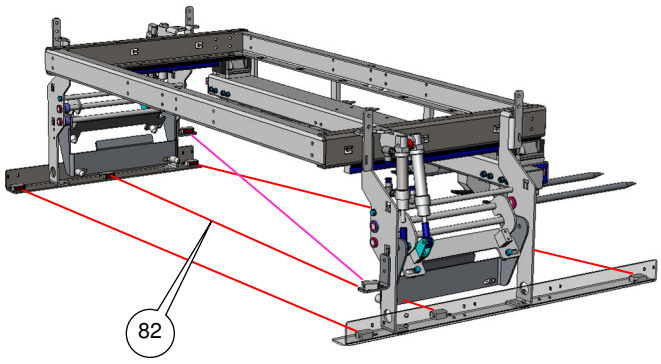
CHANGE RECIPE INFEED

Tray type:
Here it is possible to select the appropriate tray type. Select the same tray type in the change actual recipe outfeed menu.
Arrow buttons (70):
With the arrow buttons it is possible to move the fork carrier and the fork support to the required position for picking up a row from the infeed conveyor.

Actual position (71):
Here you can see the actual position of the fork carrier / fork support.
Pick-up positions infeed 1:
Here you can see the row pick-up parameters. With the up / down arrow buttons it is possible to change the value.
Teach:
When the fork carrier / fork support are on the correct position for picking up a row from the infeed conveyor, it is possible to save this position directly using this teach button.
The position value in the green numerical window is transferred to the yellow numerical window.
Off:
Here it is possible to disable the infeed conveyor.
This may be used when a pallet loader has 2 infeed conveyors.



	ATTENTION! Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!
	ATTENTION! Make sure the saved value is a correct value. Incorrect values result in collisions between the fork support and pallets, dividers, trays or machine parts, resulting in damaged machine parts, pallets, dividers, trays and eggs!

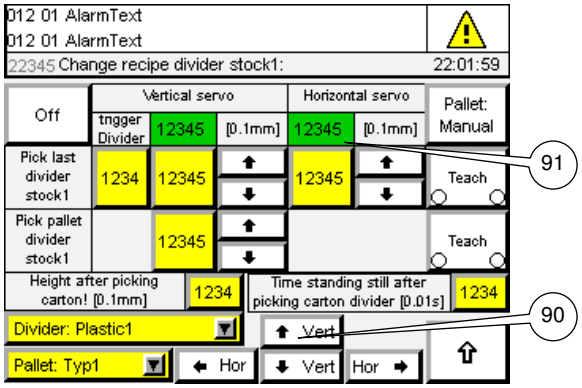


CHANGE RECIPE PALLET STOCK

Pallet type:
Here it is possible to select the appropriate pallet type.
Arrow buttons (80):
With the arrow buttons it is possible to move the fork carrier and the fork support to the required position for picking up pallets from the pallet stock.

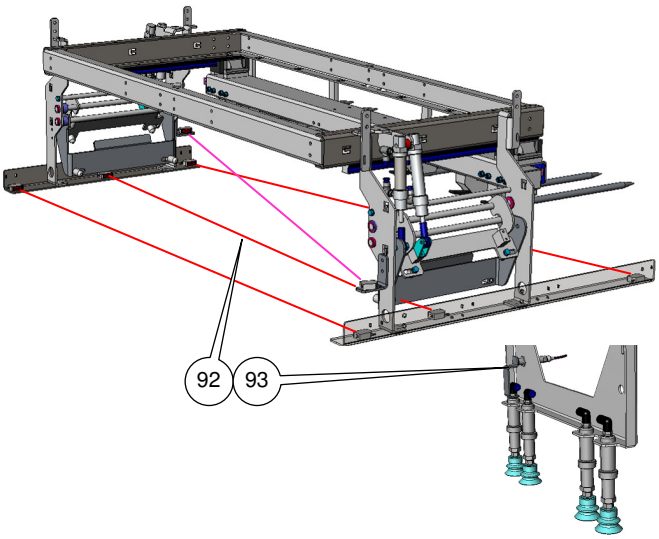
Actual position (81):
Here you can see the actual position of the fork carrier / fork support.
Pick last pallet stock 1:
Here you can see the pallet pick-up parameters for picking up the last pallet from the pallet stock.
With the up / down arrow buttons it is possible to change the value.
Pallet stock 1 full:
This parameter determines the maximum allowed height of the pallets on the pallet stock.
When the pallet stock is full and the empty pallet from the divider stock has to be placed on the pallet stock, the height of the pallets on the pallet stock should not exceed this position.
With the up / down arrow buttons it is possible to change the value.
Teach:
When the fork carrier / fork support is on the correct position for picking up the last pallet from the pallet stock (or the fork support is the maximum allowed height), it is possible to save this position directly using this teach button.
The position value in the green numerical window is transferred to the yellow numerical window.
Off:
Here it is possible to disable the pallet stock.

Trigger:
When the fork support is moving down, from a particular height is starts to use the row 2 sensor (82) to detect the pallet height.
The trigger value determines the distance the fork support moves down after the row 2 sensor has detected the pallet for the exact height to pick up the pallet.



ATTENTION!
Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!

ATTENTION!
Make sure the saved value is a correct value. Incorrect values result in collisions between the fork support and pallets, dividers, trays or machine parts, resulting in damaged machine parts, pallets, dividers, trays and eggs!

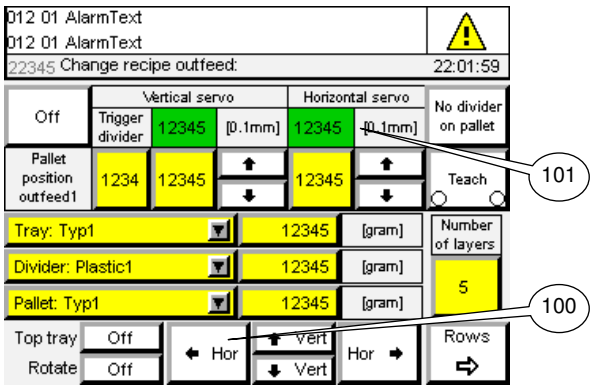


CHANGE RECIPE DIVIDER STOCK

Divider type:
Here it is possible to select the appropriate divider type.
Pallet type:
Here it is possible to select the appropriate pallet type.
Arrow buttons (90):
With the arrow buttons it is possible to move the fork carrier and the fork support to the required position for picking up dividers from the divider stock.

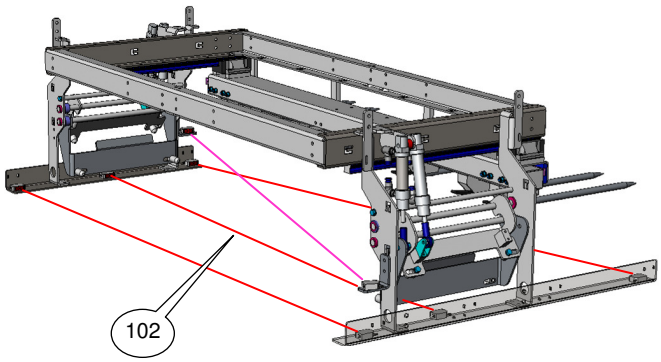
Actual position (91):
Here you can see the actual position of the fork carrier / fork support.
Pick last divider stock 1:
Here you can see the pick-up parameters for picking up the last divider from the pallet in the divider stock.
With the up / down arrow buttons it is possible to change the value.
Pick pallet divider stock 1:
Here you can see the pick-up parameters for picking up the empty pallet from the divider stock.
With the up / down arrow buttons it is possible to change the value.
Teach:
When the fork carrier / fork support are on the correct position for picking up the last divider (or the pallet) from the divider stock, it is possible to save this position directly using this teach button.
The position value in the green numerical window is transferred to the yellow numerical window.
Trigger divider:
When the fork support is moving down to pick up a divider, from a particular height it starts to use the row 2 sensor (92) to detect the height for divider stock.
The trigger divider value determines the distance (in 0.1 mm) the fork support moves down after the row 2 sensor has detected the top of the divider stock.
Plastic divider:
At this position the plastic divider is picked up.
Carton divider:
From this position, the fork support moves down until the touch sensor (93) turns OFF after which the carton divider is picked up.

Off:
Here it is possible to disable the divider stock.
Pallet manual/auto
With this button it is possible to select pallet remove from divider stock manual or auto.
When manual is selected, the empty pallet remains on the divider stock and has to be removed manually.
When auto is selected, the empty pallet is transferred automatically from the divider stock to the pallet stock.
Height after picking up carton:
When carton dividers are used, the fork support lifts up the carton, moves a certain distance up and waits there for some time to allow cartons sticking to the picked up carton to drop back down to the divider stock.
This parameter determines the certain distance that the fork support moves up.
Time standing still after picking carton divider:
When carton dividers are used, the fork support lifts up the carton, moves a certain distance up and waits there for some time to allow cartons sticking to the picked up carton to drop back down to the divider stock.
This parameter determines the time that the fork support waits.



ATTENTION!
Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!

ATTENTION!
Make sure the saved value is a correct value. Incorrect values result in collisions between the fork support and pallets, dividers, trays or machine parts, resulting in damaged machine parts, pallets, dividers, trays and eggs!



CHANGE RECIPE OUTFEED

Tray type:
Here it is possible to select the appropriate tray type. Select the same tray type in the change actual recipe infeed menu.
Divider type:
Here it is possible to select the appropriate divider type.
Pallet type:
Here it is possible to select the appropriate pallet type.
Weight:
Here the weight of the tray, divider, and pallet should be entered. This information is used for calculating the weight of the stacked pallet.
Arrow buttons (100):
With the arrow buttons it is possible to move the fork carrier and the fork support to the required position for placing rows on the pallet.

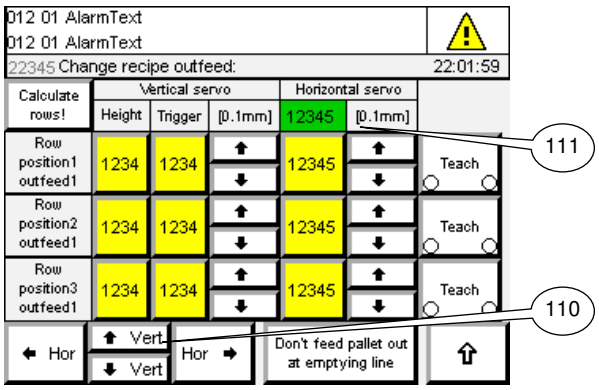
Actual position (101):
Here you can see the actual position of the fork carrier / fork support.
Pallet position outfeed 1:
Here you can see the position of the pallet on the outfeed.
With the up / down arrow buttons it is possible to change the value.
Teach:
When the fork carrier / fork support are on the correct position for placing a pallet, it is possible to save this position directly using this teach button.
The position value in the green numerical window is transferred to the yellow numerical window.
Trigger divider:
When the fork support is moving down with a plastic divider in the grippers, from a particular height it starts to use the row 2 sensor (102) to detect the height for placing a plastic divider on top of the stacks.
The trigger divider value determines the distance (in 0.1 mm) the fork support moves down after the row 2 sensor has detected the top of the stacks for the exact height to place a divider on top of the stacks.

Off:
Here it is possible to disable the pallet outfeed conveyor.
This may be used when a pallet loader has 2 outfeed conveyors.

No divider on pallet / Divider on pallet:
With this button it is possible to determine if a (carton) divider should be placed on a (wooden) pallet before starting to place the stacks on this pallet.
When no divider on pallet is selected, no divider will be placed on the pallet.
When divider on pallet is selected, a divider will be placed on the pallet.
Number of layers:
Here you can enter the amount of layers to be placed on the pallet. Normally it is possible to place a maximum of 5 layers on the pallet, but optionally it is possible to place 6 layers on a pallet.

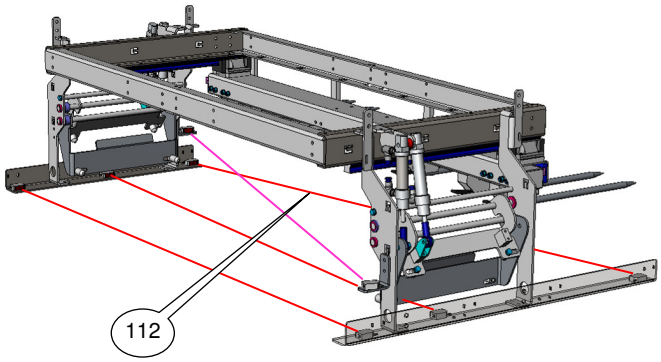
Top tray ON / OFF:
Here you can determine if a top tray should be placed on the stacks of trays which enter the pallet loader.
Rotate ON / OFF:
Here you can determine if the stack should be turned per layer.

Rows:
After touching this button you will enter the change rows recipe screen.



ATTENTION!
Before starting manual control make sure it is safe to do so (fork carrier / fork support cannot push over stacks from the pallet or collide with other machine parts)!

ATTENTION!
Make sure the saved value is a correct value. Incorrect values result in collisions between the fork support and pallets, dividers, trays or machine parts, resulting in damaged machine parts, pallets, dividers, trays and eggs!

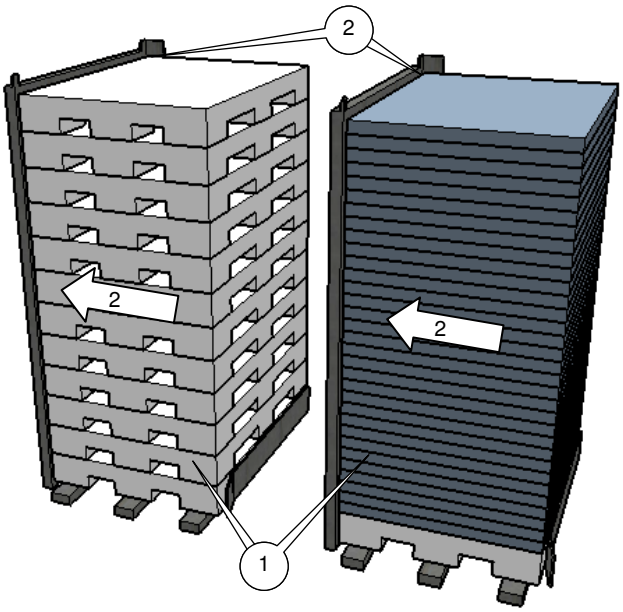


CHANGE RECIPE ROWS

Arrow buttons (110):
With the arrow buttons it is possible to move the fork carrier and the fork support to the required position for placing the rows on the pallet or the divider.

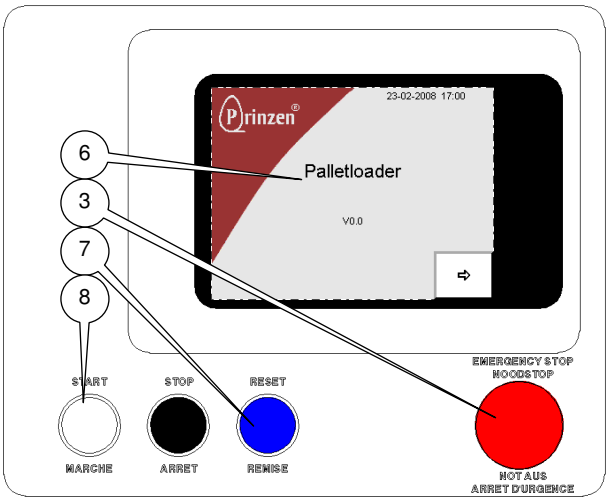
Actual position (111):
Here you can see the actual position of the fork carrier / fork support.
Row position 1, 2 and 3 outfeed:
Here you can see the positions of 3 rows on the pallet or the divider.
With the up / down arrow buttons it is possible to change the value.
Teach row 1, row 2, row 3:
When the fork carrier / fork support is on the correct position for placing a particular row (row 1, row 2 or row 3) on the pallet or divider, it is possible to save this horizontal position directly using the corresponding teach button. The horizontal position value in the green numerical window is transferred to the corresponding yellow numerical window.
Height:
The vertical positions for placing the rows are determined in the loader servo positions screen. Here it is possible to correct this position for placing stacks on carton dividers. For a lower place position, increase this height value. For a higher place position decrease this value.
Trigger:
The trigger value determines the distance (in 0.1 mm) the fork support moves down after the row 1 sensor has detected the pallet or the divider for the exact height to place a row of stacks on this pallet or divider.
With the up / down arrow buttons it is possible to change the value.

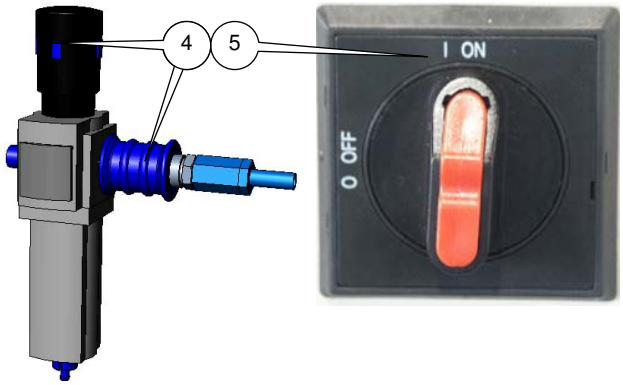
Don't feed pallet out at emptying line / Feed pallet out at emptying line:
With this button it is possible to determine if the pallet on the pallet stack position should remain there or should be removed when the run empty button is touched on the main screen.
When don't feed pallet out is selected, the pallet will remain on the pallet stack position.
When feed pallet out is selected, the pallet outfeed conveyor will transfer the pallet from the pallet stack position to the pallet discharge position.



STARTING PRODUCTION

	DANGER! On a daily basis, the operator has to check the safety provisions before starting the machine. Make sure no persons are in danger.
	CAUTION! Make sure no persons are working near the infeed or inside the pallet loader before you start-up the pallet loader. Make sure all protective covers are in place.
	ATTENTION! Make sure no tools or other objects are present inside the system.
	ATTENTION! Before starting the system make sure maintenance is performed according to the maintenance instructions further on in this manual.

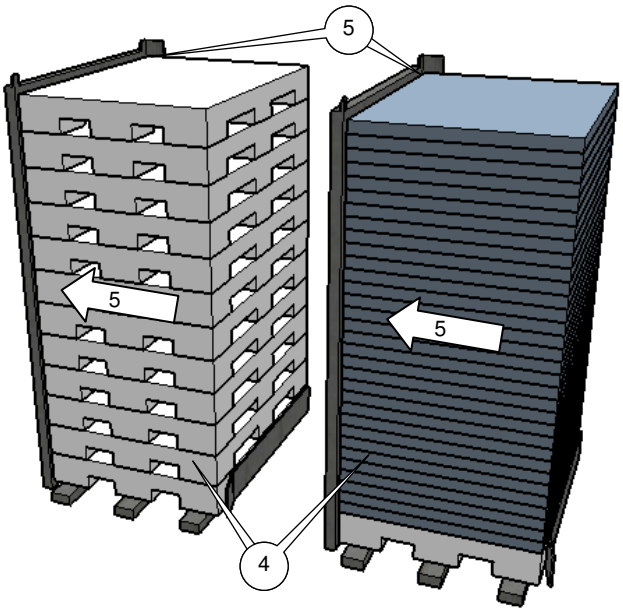




Follow below steps to power on and start up the system:

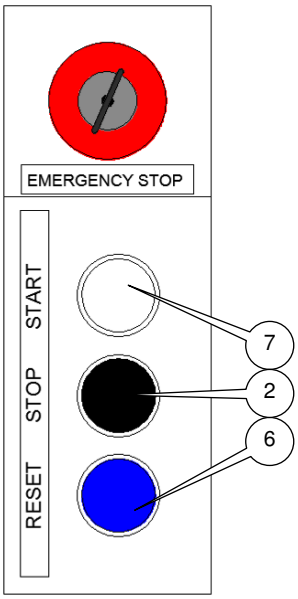
1. Place pallets in the pallet stock and a pallet with dividers in the divider stock when this is necessary.
2. Make sure the stacks are not skew. Push pallets or dividers against the guides.
   Make sure the height of the stack remains below the top of the guide.
3. Make sure all emergency stop buttons are released.
4. Switch air supply ON. Set the main air pressure to 6 bars.
5. Switch on the main power by turning the main switch ON.
6. Wait until the start-up screen appears.
   This takes around 2 minutes.
7. When the start-up screen appears wait 30 seconds and then press all the FLASHING reset buttons.
8. Before you start the pallet loader you have to make sure it is safe to initialize it (fork carrier cannot push over stacks or collide with other machine parts). If it is not safe move the fork carrier to a safe position by using the servo manual screen.
   When it is safe, press the start button. The pallet loader starts initializing the light inside the start button turns ON.
   Now the fork support moves upwards until the vertical home sensor turns ON.
   Then the fork carrier moves backwards (towards the pallet stock) until the horizontal home sensor turns ON.

9. After the pallet loader is initialized it is running and starts scanning to determine the profile of the pallet on the pallet stack position(s).



PALLET AND DIVIDERS SUPPLY

	**DANGER!** Make sure no persons are inside the fencing of the pallet loader before you start the pallet loader.
	**DANGER!** Push the safety key emergency button before you go inside the pallet loader. Keep the safety key in your pocket while you are inside the pallet loader!
	**CAUTION!** Make sure no persons are working near the supply belt or inside the pallet loader before you start-up the pallet loader.
	**ATTENTION!** Pallets and dividers should be correctly stacked. Check for properly stacked columns.



Follow below steps to supply pallets in the pallet stock or dividers in the divider stock:

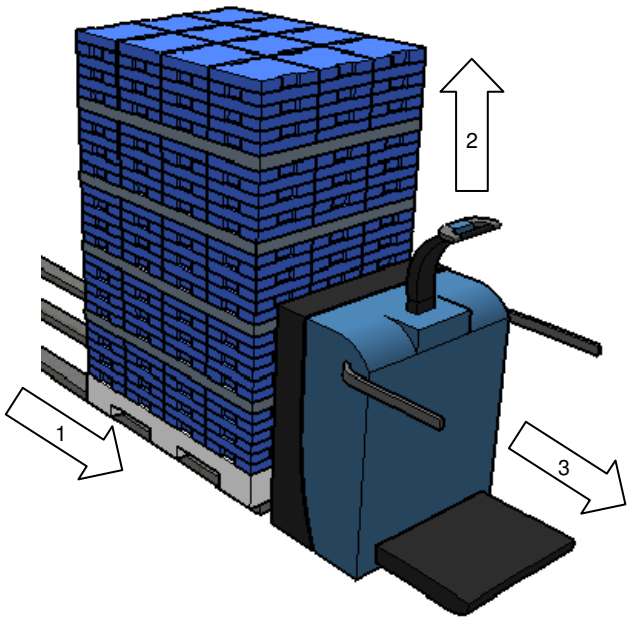
1 A message appears on the touchpanel when the last pallet or divider is picked from the stock.
2 Press the stop button on the local operating panel, the local start button starts flashing.
3 Wait until the units are stopped, the start button turns OFF.
4 Place pallets in the pallet stock or a pallet with dividers in the divider stock.
5 Make sure the stacks are not skew. Push pallets or dividers against the guides.
Make sure the height of the stack remains below the top of the guide

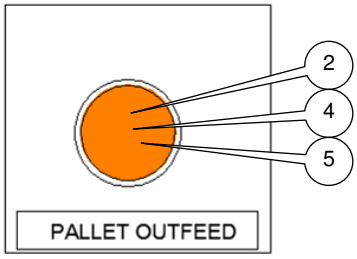
	**DANGER!** Make sure the safety screen remains interrupted when you are supplying pallets or dividers to the pallet stock or divider stock.!

6 Push the flashing reset button on the local operating panel until it stops flashing.

	**DANGER!** Make sure nobody is present inside the pallet loader before resetting an interrupted safety screen!

7 Push the start button on the local operating panel, it turns ON. Now the system continues running production.





FULL PALLET REMOVAL

Follow below steps to remove a full pallet from the pallet outfeed conveyor:

1 A full pallet is automatically transferred from the pallet stack position to the pallet discharge position.

2 Roll the forks of a fork lift or a hand pallet truck underneath the pallet en lift the pallet.
The pallet outfeed button starts FLASHING.

3 Carefully roll the pallet away from the pallet outfeed conveyor.

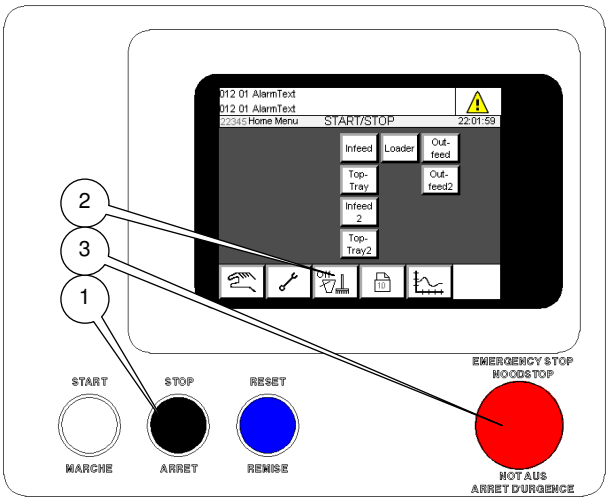
CAUTION!
Carefully transport the full pallet. Do not endanger other persons.

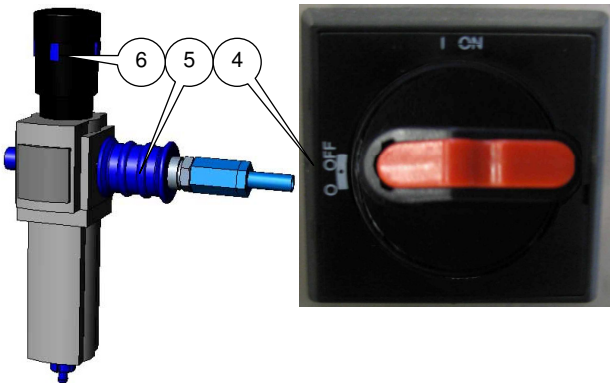
4 When the pallet is completely removed from the pallet outfeed conveyor, press the pallet outfeed button to confirm that the pallet is really removed.

DANGER!
Make sure the pallet is completely removed from the pallet outfeed conveyor. A next pallet may knock down the previous pallet causing permanent injury to the operating personnel!

5 The light inside the button turns OFF.

6 Now the pallet loader can discharge a next full pallet.



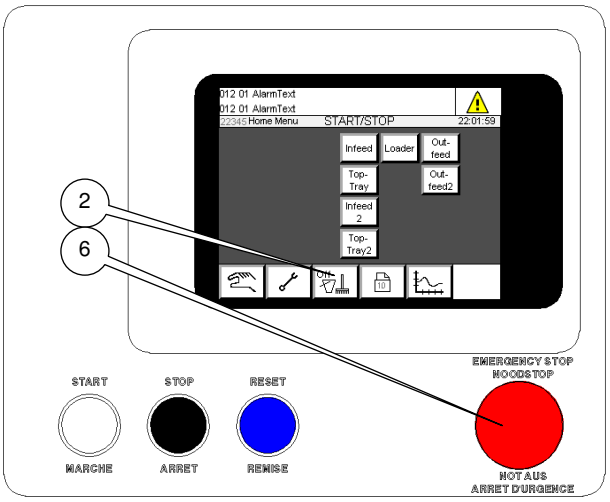


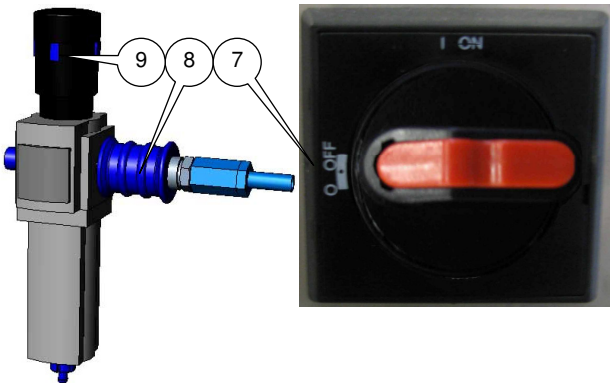
STOPPING PRODUCTION

STOPPING THE SYSTEM

Follow below steps to stop the system:

1. Push the stop button once on the main operating panel, or all local stop buttons. The start button(s) start flashing.
2. Wait until all movements of the system are stopped. The start button(s) turns OFF.
3. Press an emergency button.
4. Switch the power supply off by turning the main switch to **OFF.**
5. Make sure the fork support is empty and switch OFF the air supply.
6. Release the air through the outlet valve.
7. At the end of a production day clean the pallet loader.





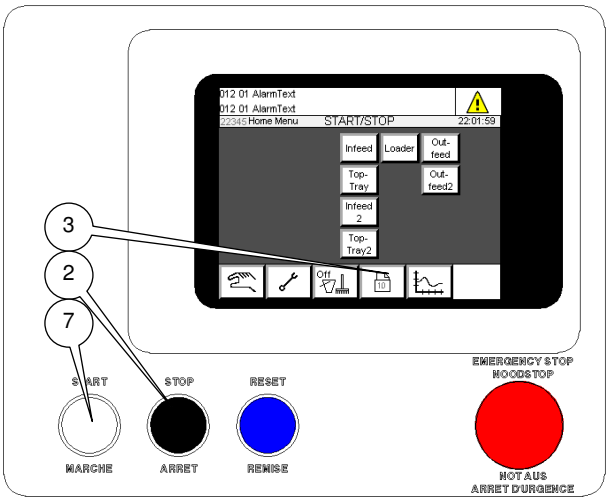
EMPTY THE SYSTEM

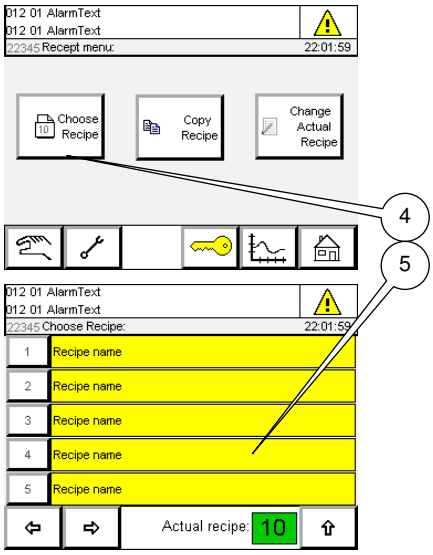
Follow below steps to empty the system before stopping it:

1. First stop the upstream systems and wait until no more stacks are supplied on the infeed conveyor of the pallet loader.
2. Push the run empty button on the touchpanel.
3. Wait until all stacks are placed onto the pallet and the fork carrier / fork support stops at the park position.
4. Wait until the pallet is discharged.

> **TIP!**
> Normally the pallet is discharged, but a setting (Feed pallet out) in the change recipe rows screen determines this. When don't feed pallet out is selected here, the pallet remains on the pallet stack position.

5. Wait until all movements of the system are stopped. The start button turns OFF.
6. Press an emergency button.
7. Switch the power supply off by turning the main switch to **OFF.**
8. Make sure the fork support is empty and switch OFF the air supply.
9. Release the air through the outlet valve.
10. At the end of a production day clean the pallet loader.





SELECT ANOTHER RECIPE

When you want to change over from for example plastic dividers to carton divider, we recommend you to first empty the system. See the run empty procedure on the previous page. For sure the infeed should be empty.

Follow below steps to select a different recipe:

1. Make sure the infeed and fork support are empty.
2. Stop the system, the light inside the start button turns OFF.
3. Go to the recipe menu.
4. Select choose recipe.
5. Select the required recipe.
6. Make sure the correct pallets and dividers are present in the stocks.
7. Start the system again.

5. CLEANING

GENERAL

Cleaning personnel who are familiar with the installation may only perform cleaning duties.

When during cleaning duties questions arise regarding the condition of the system, consult your maintenance engineer.

SAFETY REGULATIONS

Read the chapters Introduction and Safety before starting operation, cleaning, maintaining the system or remedying breakdowns.

CLEANING UTENSILS AND DETERGENTS

In general we advise to have the following tools, cleaning utensils and detergents available during cleaning duties:

- Padlock.
- Vacuum cleaner.
- Compressed air.
- Plastic scraper.
- Moistened cloth.
- Water and neutral soap.
- Lubricants.

	**CAUTION!** When using warm water to moisten a cloth, make sure the temperature of the water is below 45°C. Above this temperature it is possible to incinerate body parts.
	**ATTENTION!** Do not use abrasive cleaning detergents or utensils on non-longwearing parts. Do not use aggressive cleaning products. Use cleaning product with a PH value higher than 6. **Do not use chlorinated cleaning agents.** After cleaning with a cleaning product, rinse off with plenty of water.
	**ATTENTION!** The system is NOT designed for wet cleaning. Do NOT clean the system with water and certainly NOT with a high spraying pistol. Only use moistened cloths for cleaning. Do NOT clean bearings, printers, robots, electrical parts and pneumatic parts with water.
	**NOTE!** Use H1 classified lubricants. These lubricants are approved to use in the food processing industry.
	**TIP!** Prinzen uses Interflon Fin Food Lube Teflon spray and Griffon HR260 Silicone spray.

RECOMMENDED CLEANING AGENT

Prinzen customers often use Hatchonet cleaning agent for hatcheries for cleaning their systems. The supplier of this cleaning agent is Cid lines. For safe and correct use of this cleaning agent, contact Cid lines. Visit their website to find a local dealer: www.cidlines.com.

Prinzen recommends this cleaning agent instead of others but we cannot verify the correct use of it and thus we cannot guarantee a good cleaning result and avoiding negative influences of it on our systems.

GENERAL CLEANING PROCEDURE

Read the below general cleaning procedure to clean the system. For specific cleaning instructions see the cleaning instructions further on in this chapter.

- See to it that all products (eggs, trays,..) are removed by letting the machine run empty.
- Switch off the system and secure it against accidental switching on.
- Clean the complete system with a vacuum cleaner, compressed air, a dry cloth and a plastic scraper.
- Remove persisting scrap with a moistened cloth.
- Clean the floor underneath and around the system.
- Check the condition of the cleaned parts during cleaning.

CLEANING INTERVAL

Remove all dirt inside and around the system after every 8 hours running production.
Clean the system thoroughly after every 40 hours running production and afterwards lubricate the moving parts according to the preventive maintenance instructions further on in this manual.

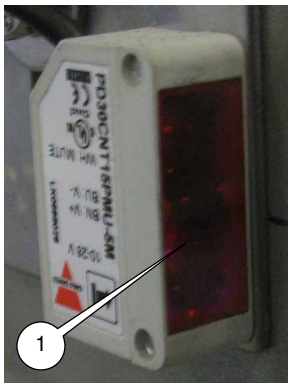
TIP!
The cleaning advices and cleaning intervals described in this manual are general. For your specific products and production process the cleaning schedule may need alteration. During the first production months observe the contamination of the system and the influence of this contamination on the product quality and production process and (if necessary) change the cleaning methods and schedules.

AFTER CLEANING

When the cleaning duties are finished, follow steps below:

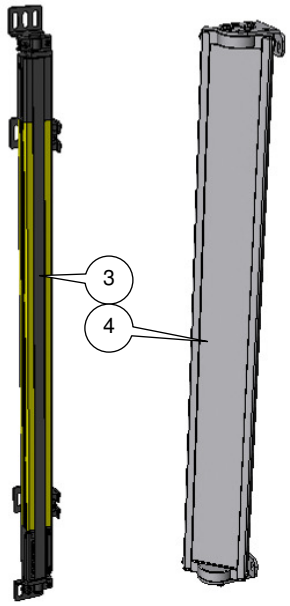
- Consult your maintenance engineer in case of questions about the condition of parts.
- Blow dry the system, the system must be absolutely dry before putting it back into operation.
- Lubricate moving parts that have been cleaned.
- Remove excess grease after lubrication.
- Make sure all cleaning utensils are removed from the machine.

CLEANING COMPONENTS



CLEANING PHOTO SWITCHES

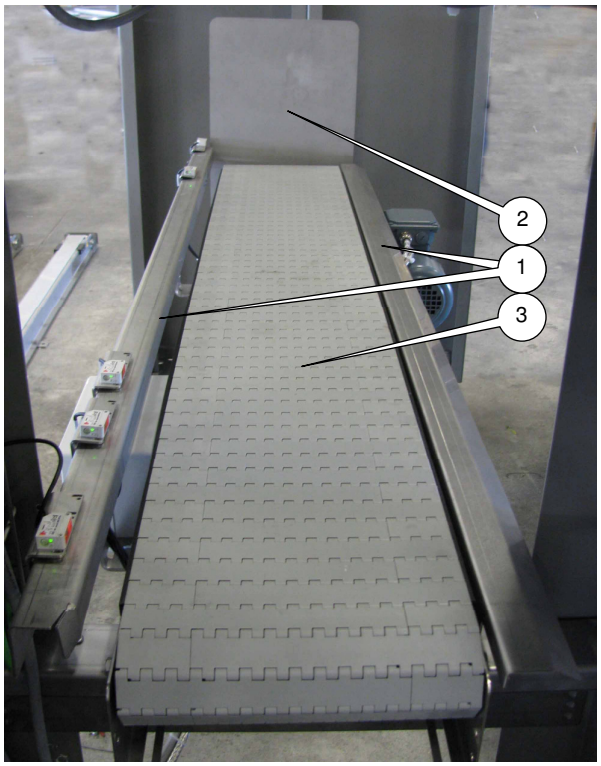
Clean the lenses of the photo switches (1) and the reflectors (2) with a moistened soft fluff-free cloth.



CLEANING SAFETY SCREENS

Clean the lenses of the safety screens (3) and the surface of the accompanying mirrors (4) with a moistened soft fluff-free cloth.

CLEANING INSTRUCTIONS



CLEANING BELTS

Clean the guides (1), the stopper (2) and the belt (3) with a plastic scraper and a moistened cloth or brush.

CLEANING FLOOR

Clean the floor (6) underneath the loader.

6. PREVENTIVE MAINTENANCE

GENERAL

Only professionals who are familiar with the installation and its operation may perform maintenance, repairs and replacement of defective or worn out parts.

In case of difficult or special repairs consult the Service Department of Prinzen.

Inspections must be carried out before, during and after operation of the machine. Mechanical flaws, such as loose bolts and ball bearings must be repaired upon discovery.

The operator is responsible for noticing and locating abnormal noises and other unusual signs indicating flaws. If the operator cannot locate the flaw, he must stop the installation and inform his superior.

Take preventive actions against vermin as they may cause failures to the electrical cables and such.

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

MAINTENANCE UTENSILS

In general we advise to have the following tools available for preventive maintenance of the Prinzen systems:

- Padlock
- Lubricants.
- Set of Allen keys.
- Set of wrenches
- Set of screwdrivers.

RECOMMENDED LUBRICANTS

Prinzen uses Interflon Fin Food Lube Teflon spray and Griffon HR260 Silicone spray. See below table for alternative lubricants and their manufacturers. On the websites of the manufacturers you can find a local dealer for your desired lubricant.

Component:	Lubricant:	Supplied in:	Brand:			Food grade:
Chains Rod ends Guides Bronze plain bearings	Fin Food Lube	Aerosol	INTERFLON	www.interflon.com	Interflon	Yes
	Fin Lube TF	Aerosol				No
	TF089 PTFE spray	Aerosol	GRIFFON	www.griffon.nl	Griffon	No
	Klüberoil 4NH1 4-220N	Aerosol	KLÜBER LUBRICATION	www.klueber.com	Klüber	Yes
	Klüberoil CM 1-220	Aerosol				No
	Cassida PL (Cassida FL5)	Aerosol	FUCHS	www.fuchs.com	Fuchs	Yes
	Gleitmo 985	Aerosol				No
Plastic guides Plastic plain bearings	HR260 Silicone spray	Aerosol	GRIFFON	www.griffon.nl	Griffon	No
	UNISILKON M 2000	Aerosol	KLÜBER LUBRICATION	www.klueber.com	Klüber	Yes
	Cassida Silicone fluid spray	Aerosol	FUCHS	www.fuchs.com	Fuchs	Yes
	Stabylan SI 210	Aerosol				No

ATTENTION!
When you want to use different types of lubricants than the lubricants used by Prinzen, make sure that these lubricants do not form a harmful product when contacting the lubricants used by Prinzen.

NOTE!
Use H1 classified lubricants. These lubricants are approved to use in the food processing industry.

NOTE!
Residues of lubricant must be discharged as chemical waste.

TIP!
Prinzen uses Interflon Fin Food Lube Teflon spray and Griffon HR260 Silicone spray

GENERAL MAINTENANCE PROCEDURE

Before actually starting to maintain the system, first follow below steps:

- See to it that all eggs are removed by letting the machine run empty.
- Switch off the system and secure it against accidental switching on.
- Perform the maintenance.
- Check the condition of the system during maintenance.

Perform the maintenance according the advices and intervals as described in the Preventive maintenance instructions further on in this chapter.

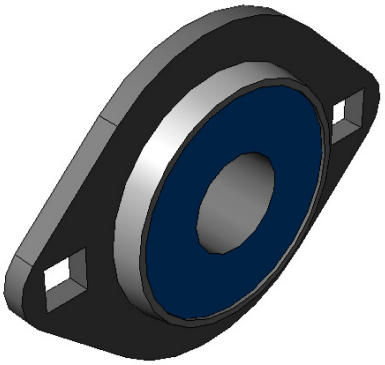
TIP!
The maintenance advices and intervals described in this manual are general. For your specific products and production process the maintenance schedule may need alteration. During the first production months observe the performance of the system and the influence of the maintenance and (if necessary) change the maintenance methods and schedules.

AFTER MAINTENANCE

When the maintenance duties are finished, ensure the following:

- All fasteners are secure.
- All safety covers are in place and safety doors are closed.
- All tools are removed from the system.
- Excess lubricant is removed.
- The system is tested before starting production.

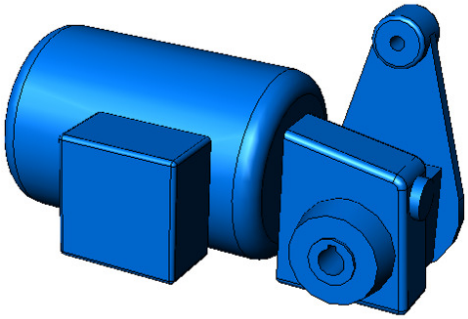
MAINTENANCE COMPONENTS



BEARINGS

In the Prinzen systems normally bearings without a grease nipple are used. These bearings have a life time lubrication. No grease is needed.

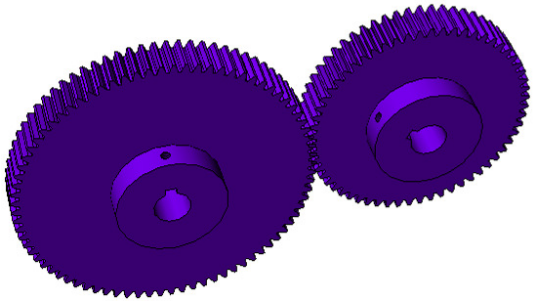
TIP!
All bearings are sealed and lubricated for life and require no lubrication.



MOTORS AND REDUCTORS

In the Prinzen systems normally motor-reductors with a lifetime lubrication are used. It is not needed to change the oil.

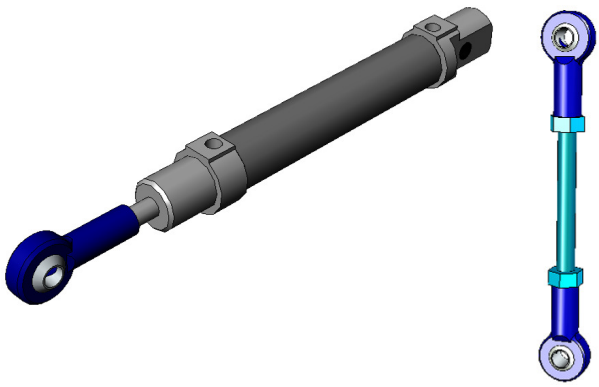
TIP!
All motors are provided with lifetime lubrication and require no lubrication.



GEARS

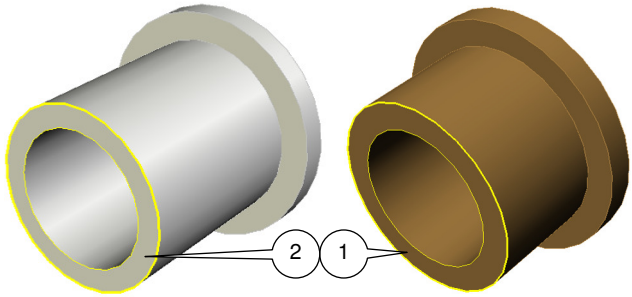
In the Prinzen systems normally plastic gears are used. These gears do not need lubrication.

TIP!
All gears are made from plastic and require no lubrication.



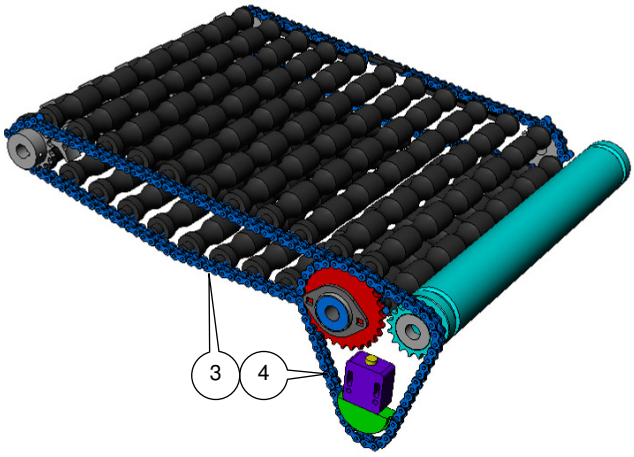
ROD ENDS

Rod ends need lubrication weekly. Apply Teflon spray after every 40 hours running production. Rod ends that are cleaned with water need to be lubricated directly after cleaning.



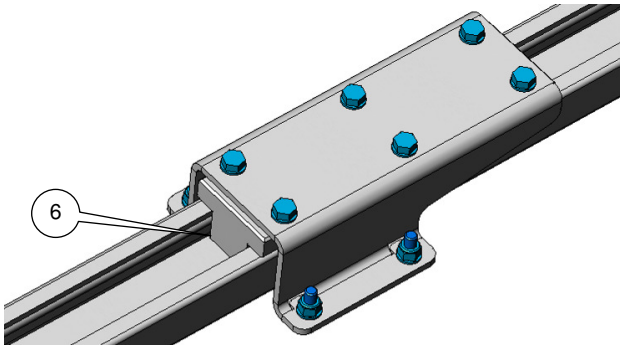
PLAIN BEARINGS

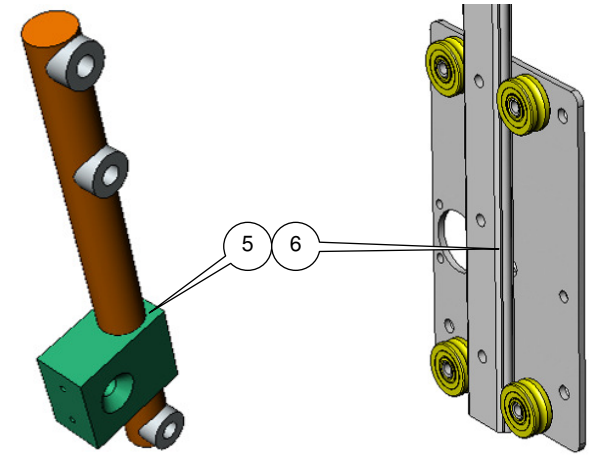
In the Prinzen systems bronze (1) and plastic (2) plain bearings are used. Both types of plain bearings need lubrication weekly. Lubricate bronze plain bearings with teflon spray and plastic plain bearings with silicone spray. Do this after every 40 hours running production. Plain bearings that are cleaned with water need to be lubricated directly after cleaning.



CHAINS

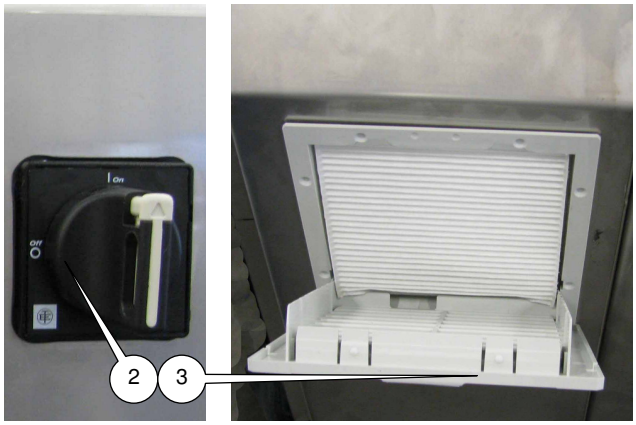
In the Prinzen systems different executions of chains are used: transport chains (3) and drive chains (4).
Transport chains are chains that transport product carriers (for example egg grippers). Check those chains monthly for wear and tension and lubricate them every 200 hours running production with teflon spray.
Drive chains are chains that transfer the rotating movement of one shaft to another. Normally these chains have a chain tensioner. Check those chains half yearly for wear and tension and lubricate them every 1200 hours running production with teflon spray.
Chains that are cleaned with water need to be greased directly after cleaning.

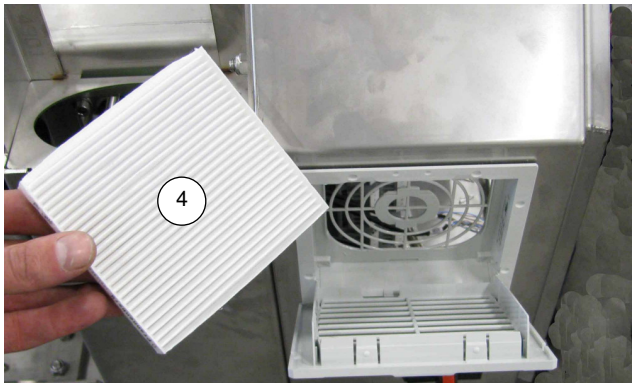


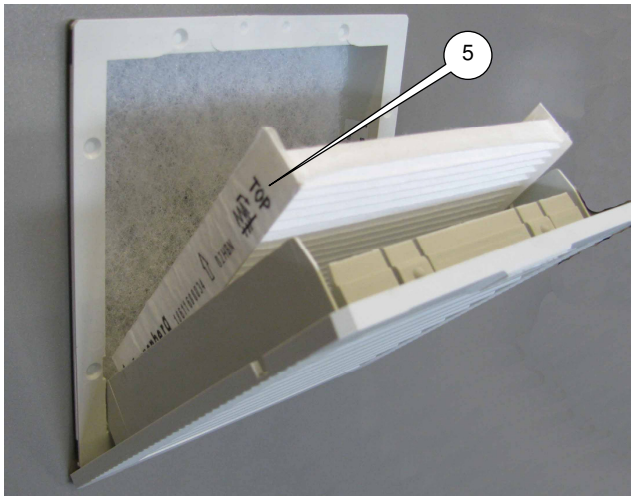


GUIDES

In the Prinzen systems several types of (linear) guides are used:
Lubricate plastic guides (5) weekly with silicone spray. Do this after every 40 hours running production. Lubricate other guides (6) monthly with teflon spray. Do this after every 200 hours running production.
Before lubricating clean the guides with a solvent and a soft cloth. Do not spray lubricant directly on the guides. Use a cloth to apply a film of lubricant on the guides.
Guides that are cleaned with water need to be lubricated directly after cleaning







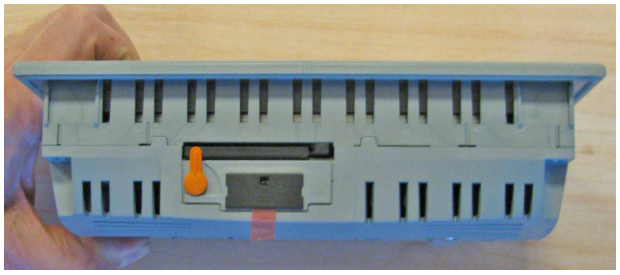
REMOVING FILTER OPERATING PANEL

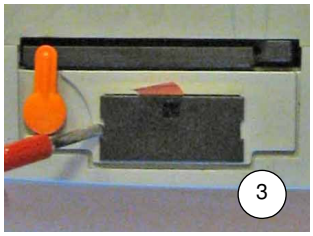
In the electrical cabinets an air inlet and air outlet is present. A filter is placed in front of these inlet and outlet. Check these filters once a month for contamination and replace them with a clean filter if necessary.

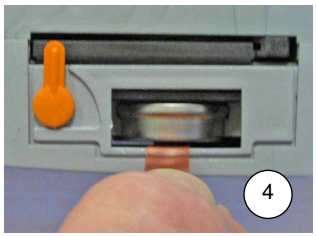
Follow below procedure to replace the filters of the electrical cabinet:

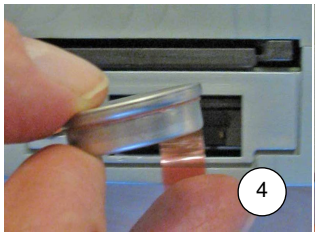
1. Stop the system.
2. Switch OFF the main switch on the electrical cabinet.
3. Open up the filter holder by pulling the clip on the topside.
4. Replace the contaminated filter in the filter holder by a clean filter.
5. Take note of the filter orientation. The arrows should point towards the electrical cabinet and the “TOP” text should be up.
6. Close the filter holder again.

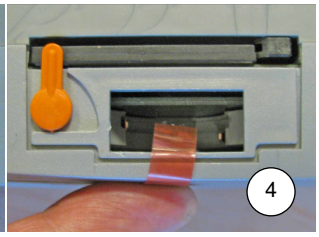
CAUTION!
Always switch OFF the main switch before opening the filter holder!

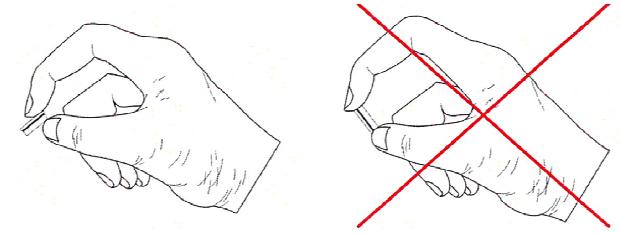


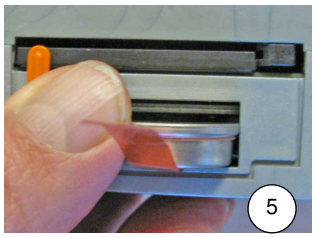


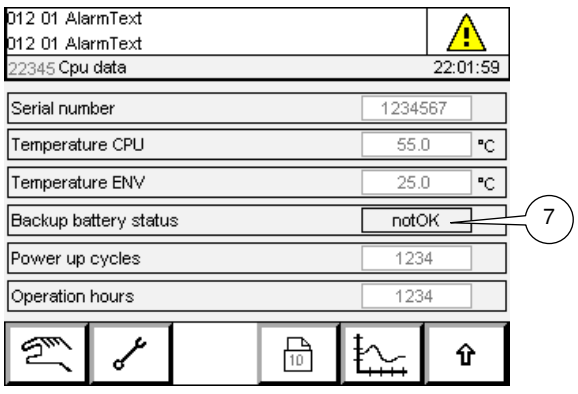












PLC BATTERY REPLACEMENT

Battery replacement:
Parameter settings of the system are stored in the memory of the PLC. When the system is not powered ON, the power for the memory is supplied by a battery.

ATTENTION!
During normal circumstances, never remove the battery. Without battery, data may be lost resulting in malfunctioning of the system.

To prevent loss of the parameter settings, replace this battery of the PLC every 2 years. Try to have a spare battery on stock before the 2 years have passed. The battery is a long lead item, but keep in mind that a battery on stock is leaking juice, so do not keep a battery on stock for more than 1.5 years.

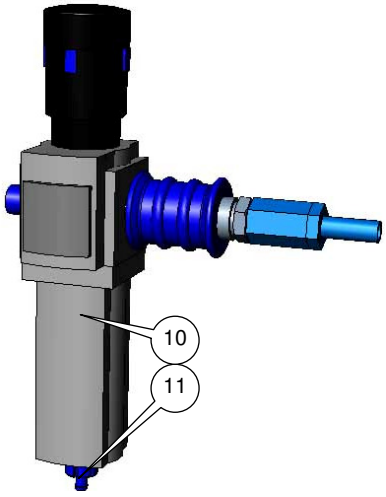
Battery type: CR2477N 3V (Prinzen part number 8001500340).

In case the battery is exhausted, the message “Battery discharged” appears on the screen. In that case do not power off the system until you are going to replace the battery!

Battery replacement procedure:

1 When the system is turned OFF, turn the power ON and leave it ON for at least 10 minutes.
2 After at least 10 minutes power ON, turn the power OFF. Now within 10 minutes replace the “old” battery with the “new” one.
3 Touch the housing or other ground connection to discharge any electrostatic charge from your body. Remove the cover of the battery at the rear side of the touchpanel.
4 Carefully pull the strip out to remove the “old” battery. Do not touch the battery on its edges.
5 Carefully place the “new” battery into the battery slot. Make sure the strip remains underneath the “new” battery and sticks out of the slot for the next replacement.
6 Close the cover and switch ON the power supply.
7 Check the battery status in the CPU screen. Make sure OK displayed.

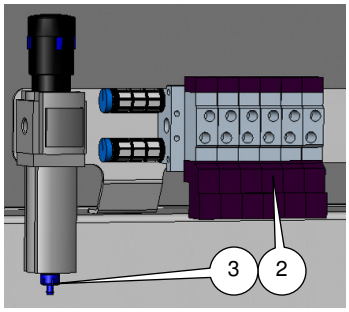
NOTE!
Used batteries must be discharged as chemical waste.

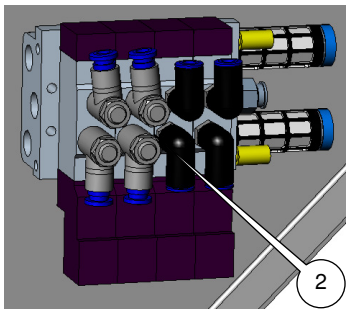


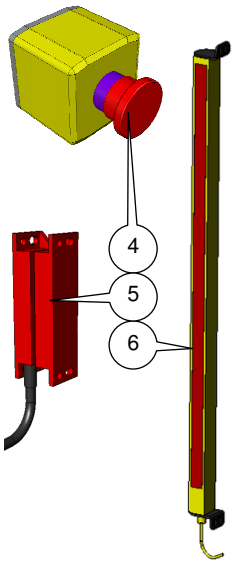
AIR SUPPLY

The air supply coming into the Prinzen systems must be clean and dry. This air goes through a water separator (10) with filter that separates the liquids and the pollution, which has mixed with the air flowing through the air distribution pipes.
The water separator needs manual drain-off. Check the regulator daily and drain-off the water if necessary (11).
Check the filter inside the water separator half yearly and clean or replace it if necessary.

PREVENTIVE MAINTENANCE INSTRUCTIONS

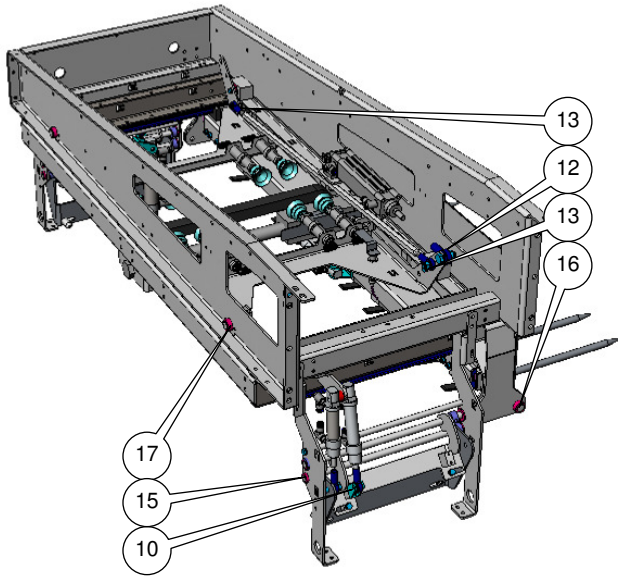


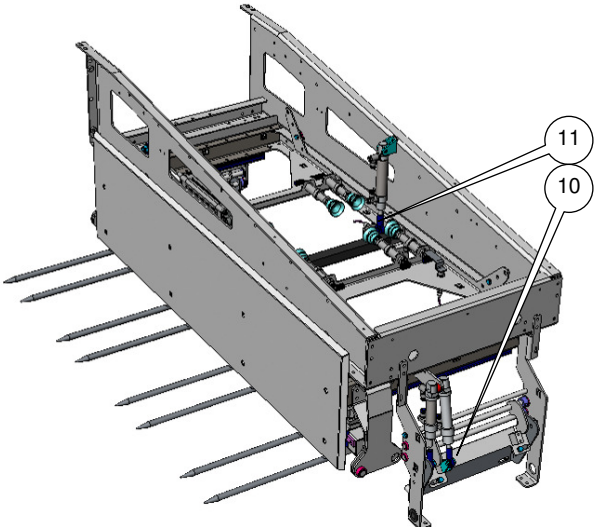


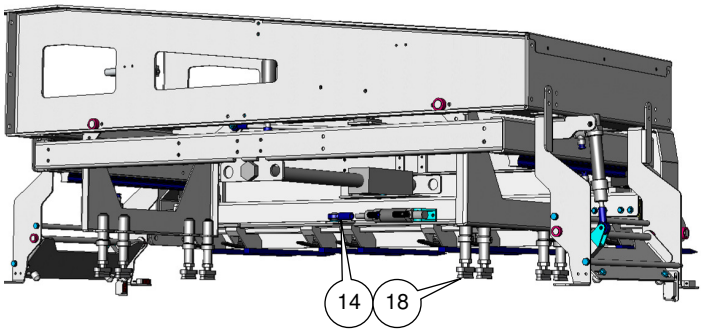


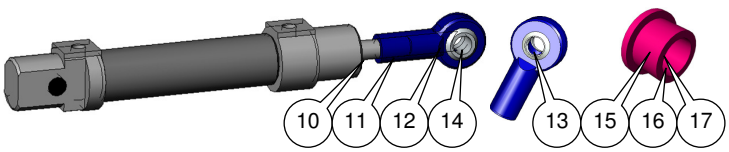
DAILY PREVENTIVE MAINTENANCE

	Daily Maintenance:	Interval (hours):	h
1	Observe for abnormal sounds, vibrations and heat		8
2	Check complete air supply for leakage		8
3	Drain off water separator air regulators		8
4	Check the functionality of the emergency stop buttons		8
5	Check the functionality of the optional safety switches		8
6	Check the functionality of the safety screens		8



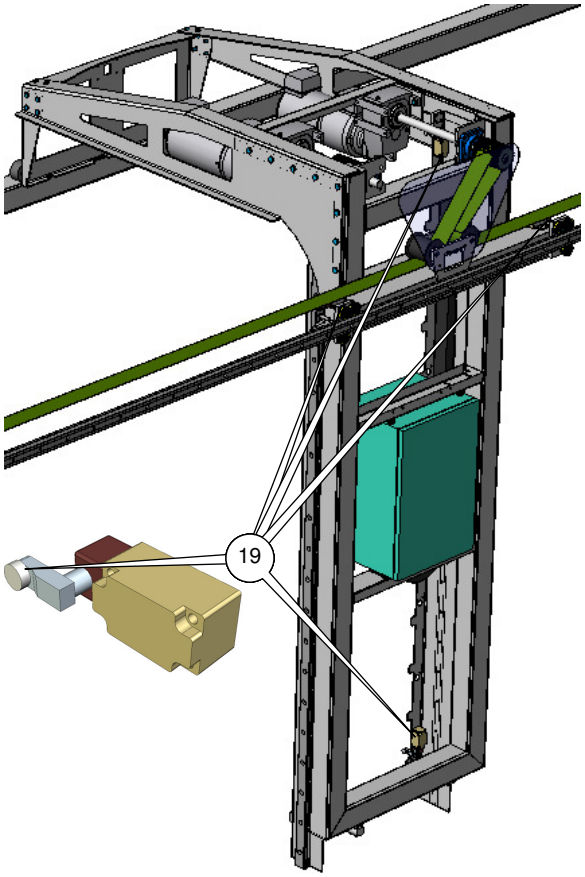


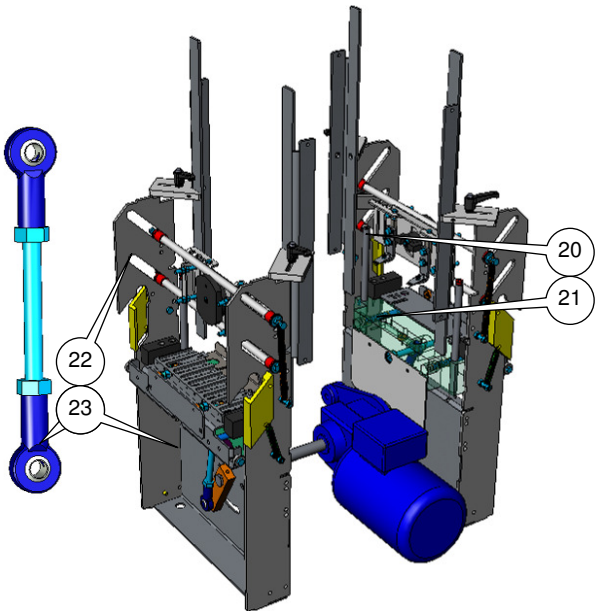




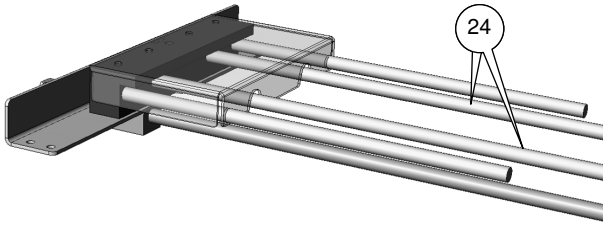
WEEKLY PREVENTIVE MAINTENANCE

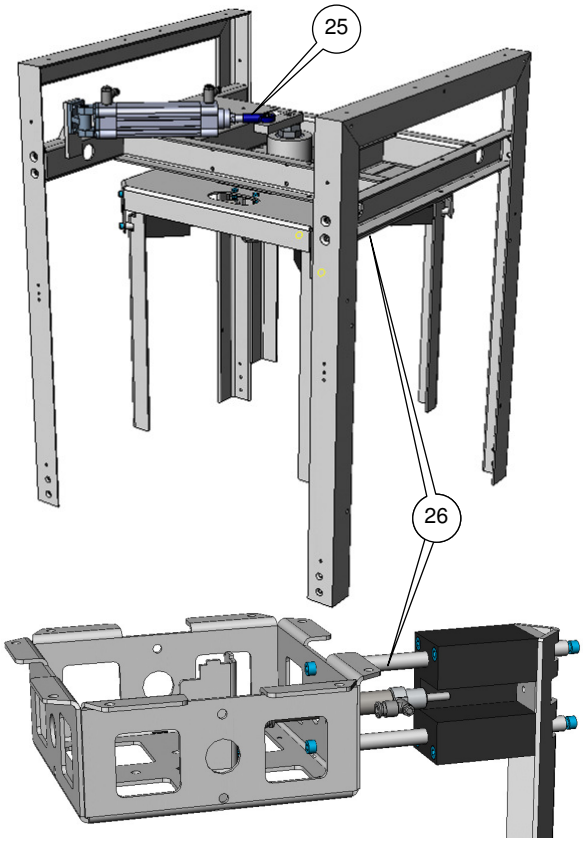
	Weekly Maintenance:	Interval (hours): h
10	Apply Teflon spray on rod ends gripper cylinders (4x)	40
11	Apply Teflon spray on rod end tilting cylinder	40
12	Apply Teflon spray on rod end venturi frame cylinder	40
13	Apply Teflon spray on rod ends venturi frame tie rod (2x)	40
14	Apply Teflon spray on rod end side shift cylinder	40
15	Apply Teflon spray on plain bearings grippers (8x)	40
16	Apply Teflon spray on plain bearings tilting mechanism (2x)	40
17	Apply Teflon spray on plain bearings venturi frame (4x)	40
18	Check vacuum cups for damages (8x)	40



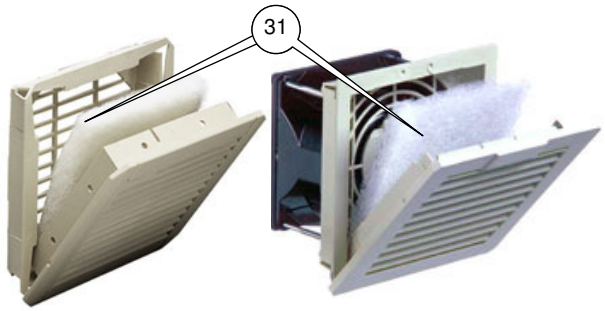


	Weekly Maintenance:	Interval (hours): h
19	Check the functionality of the limit switches (4x)	40
20	Apply silicon spray to the top tray denester block up/down guide (4x)	40
21	Apply silicon spray to the top tray denester lower grippers in/out guides (4x)	40
22	Apply silicon spray on the top tray denester upper gripper's plain bearings (8x).	40
23	Apply Teflon spray on rod ends 30 cell top tray denester (4x)	40



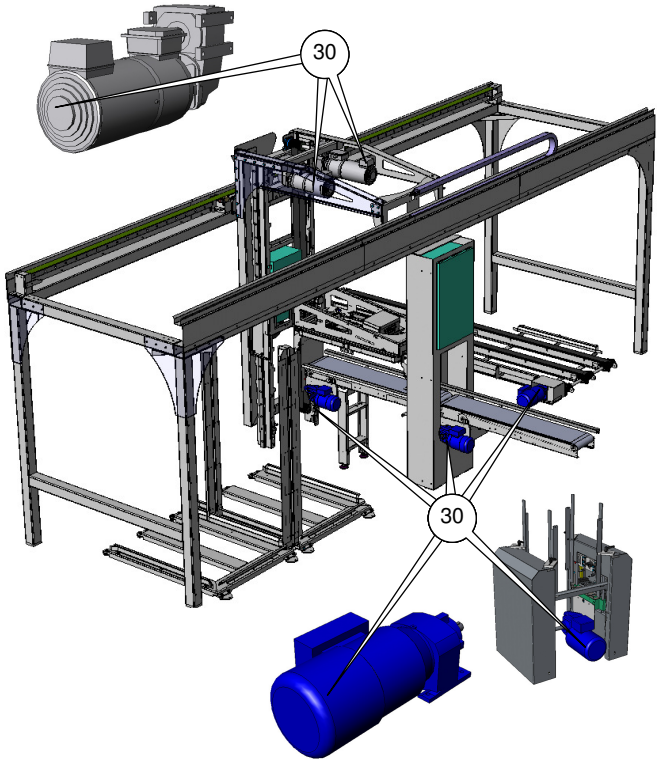


	Weekly Maintenance:	Interval (hours): h
24	Apply silicon spray to the top tray denester pusher guides (2x)	40
25	Apply Teflon spray to the top tray denester rotator cylinder rod end	40
26	Apply silicon spray to the top tray denester centering unit guides (8x)	40

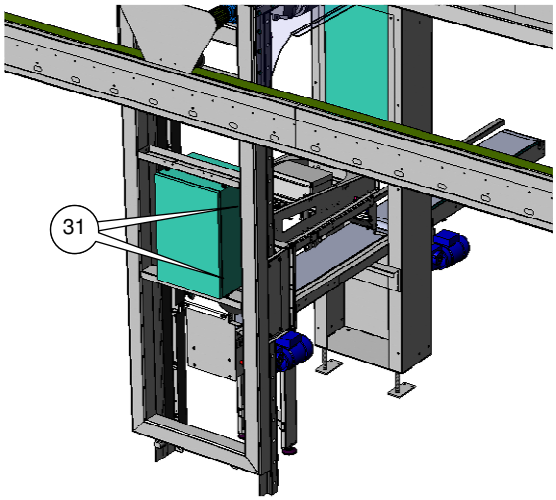


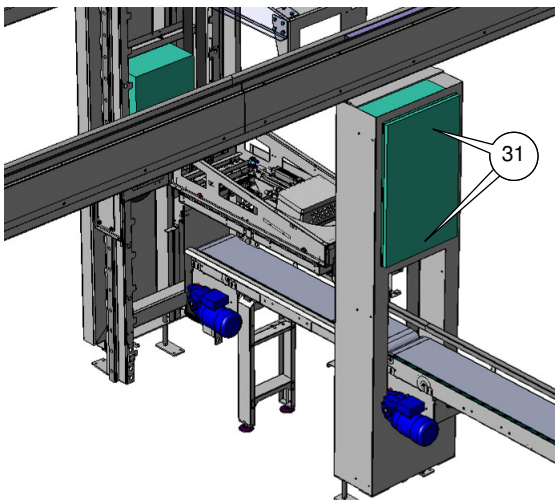
MONTHLY PREVENTIVE MAINTENANCE

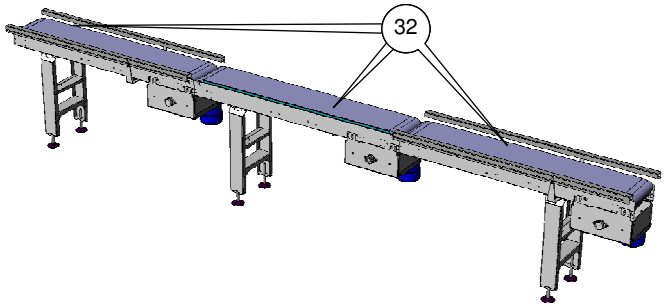
	Monthly Maintenance:	Interval (hours): h
30	Clean motor fans with compressed air	200
31	Check the filters of the electrical cabinet for contamination and replace if necessary	200

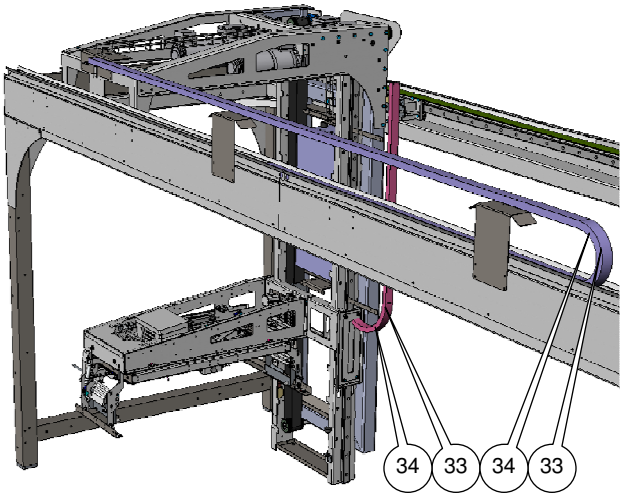


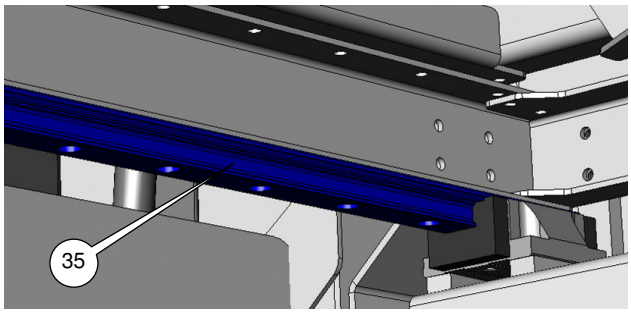
CAUTION!
Wear eye protection during cleaning of the motor fans with compressed air.

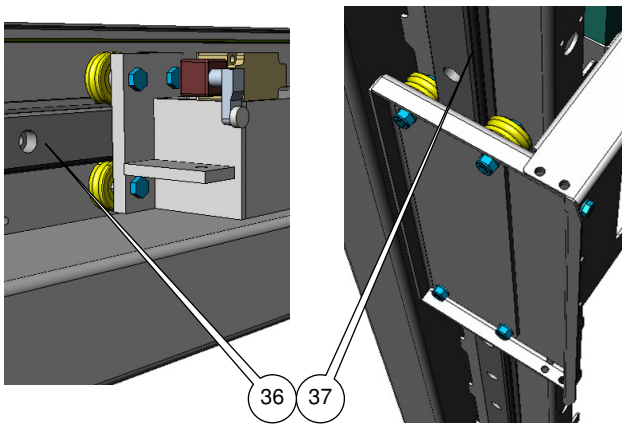




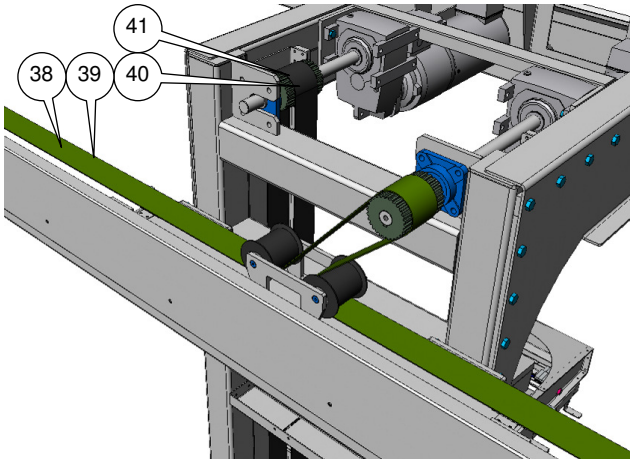


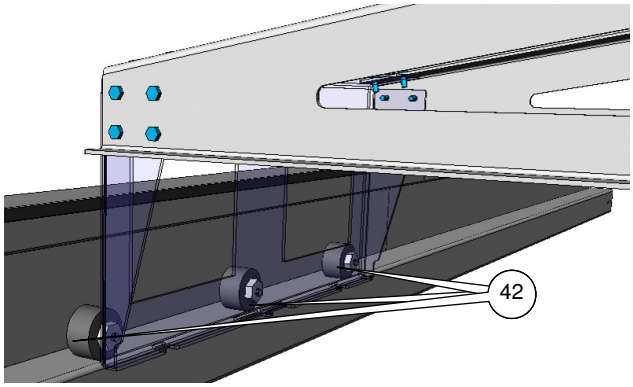


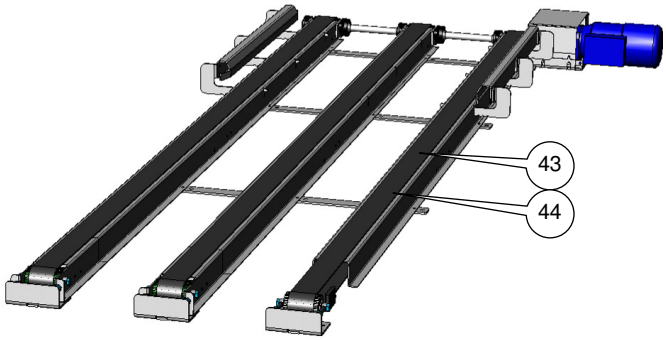




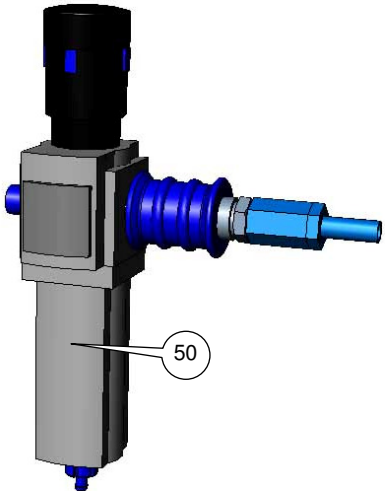
	Monthly Maintenance:	Interval (hours): h
32	Check the belt tension of all conveyors	200
33	Check the electrical wiring for damages	200
34	Check the air hoses for damages	200
35	Clean forks front/rear guides with a solvent and a soft cloth. Apply Teflon spray on the guides. Do not spray direct on the guides but use a cloth to apply a film of lubricant on these guides (2x)	200
36	Clean fork carrier guide with a solvent and a soft cloth. Apply Teflon spray on the guide. Do not spray direct on the guide but use a cloth to apply a film of lubricant on this guide	200
37	Clean fork support guides with a solvent and a soft cloth. Apply Teflon spray on the guides. Do not spray direct on the guides but use a cloth to apply a film of lubricant on these guides (2x)	200





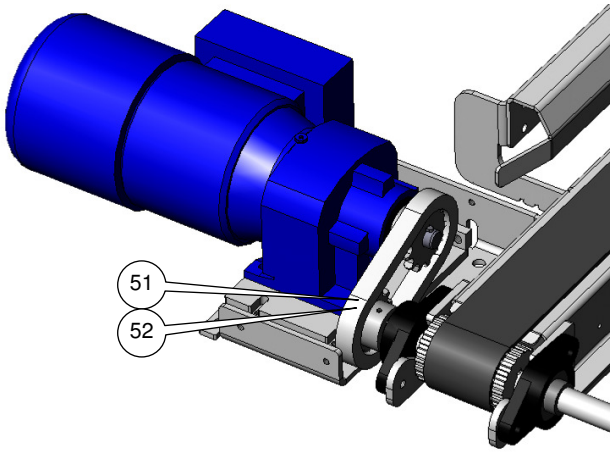


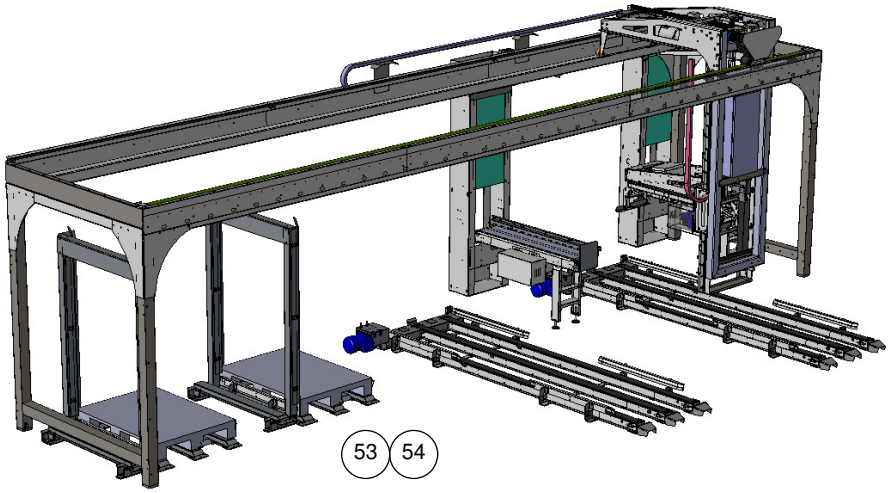
	Monthly Maintenance:	Interval (hours):	h
38	Check the fork carrier timing belt tension		200
39	Check the fork carrier timing belt for wear and damages		200
40	Check the fork support timing belt tension		200
41	Check the fork support timing belt for wear and damages		200
42	Check the wheels of the fork carrier for wear and damages (3x)		200
43	Check the timing belt tension of all the outfeed conveyors		200
44	Check the timing belts of all outfeed conveyors for wear and damages		200

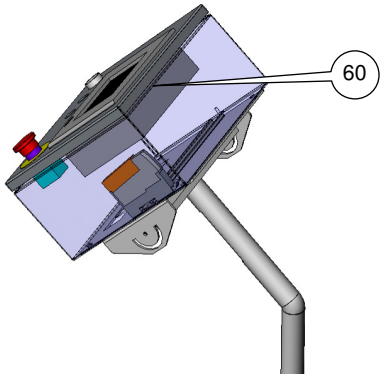


½ YEARLY PREVENTIVE MAINTENANCE

	½Yearly Maintenance:	Interval (hours): h
50	Check the filter inside the air regulator for contamination and clean or replace it if necessary	1200
51	Check outfeed conveyors drive chains for wear	1200
52	Apply Teflon spray on the outfeed conveyors drive chains	1200
53	Check all bearings for wear	1200
54	Check complete system for loose parts, bolts, nuts,..etc	1200







2 YEARLY PREVENTIVE MAINTENANCE

	2 Yearly Maintenance:	Interval (hours):	h
60	Replace the touchpanel internal battery.		4800

TIP!
When the internal battery of the PLC is empty, the system will malfunction and needs to be re-tuned by a specialist from Prinzen.

TIP!
Although the battery has a lifetime of approximately 5 years, Prinzen advises to replace the battery during a two yearly maintenance.

7. ADJUSTMENTS

GENERAL

Only professionals who are familiar with the installation and its operation may perform adjustments.

In case of difficult or special adjustments consult the Service Department of Prinzen.

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

AFTER ADJUSTMENTS

When the adjustments are finished, ensure the following:

- All fasteners are secure.
- All tools are removed from the system.
- All safety covers are in place and safety doors are closed.
- The system is tested before starting production.

COMPONENT ADJUSTMENTS

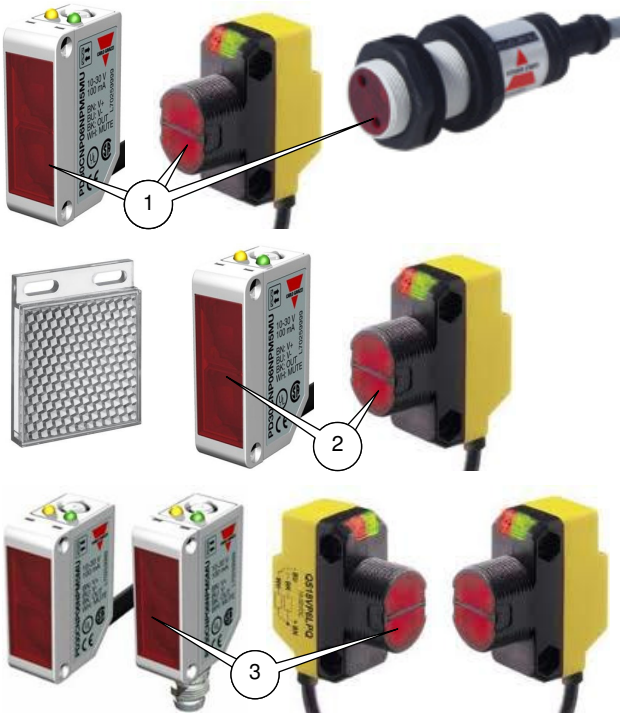
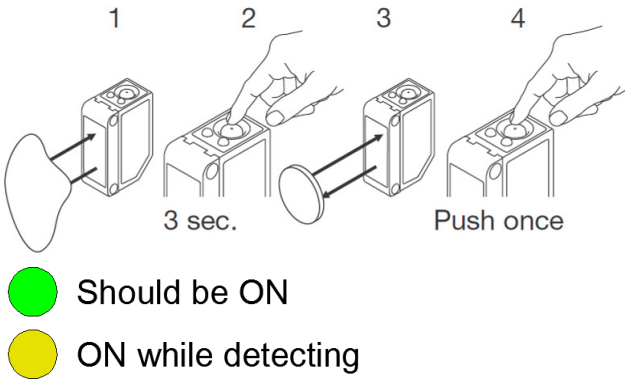


PHOTO SWITCHES

There are 3 types of photo switches:
Diffuse reflective photo switch (1):
This is a photo switch which transmits a light beam. An object is detected when the photo switch receives the light beam back because it reflects on the object.
Retro reflective photo switch (2):
This is s a photo switch which uses a reflector to receive its transmitted light beam back. An object is detected when it interrupts the light beam.
Through beam photo switch (3):
This photo switch consist of a transmitter and a receiver part. The transmitter sends a light beam to the receiver. An object is detected when it interrupts the light beam.

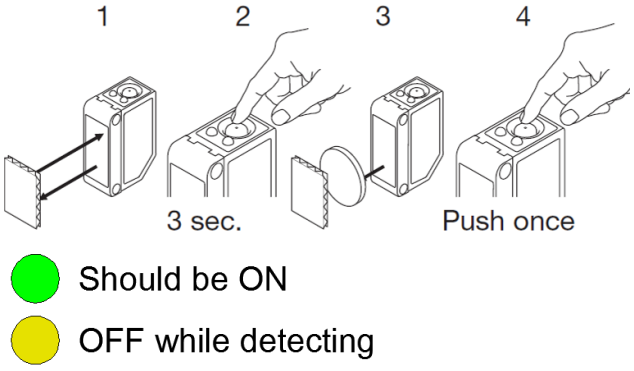
PD30 DIFFUSE REFLECTIVE



Adjust the sensor according the below procedure:

1. Align the sensor to its correct position without the object it has to detect. The green LED should be ON.
2. Press and hold the teach button for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in front of the photo switch.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns ON when an object is detected.

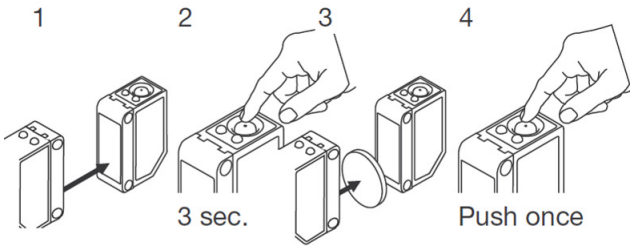
PD30 RETRO REFLECTIVE



Adjust the sensor according the below procedure:

1. Align the sensor and the reflector to their correct positions without the object it has to detect. Both LEDs should be ON.
2. Press and hold the teach button for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in between the sensor and the reflector.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns OFF when an object is detected.

PD30 THROUGH-BEAM



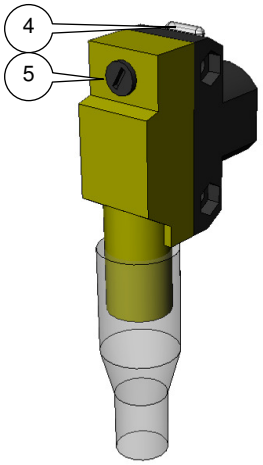
Should be ON

OFF while detecting

Adjust the sensor according the below procedure:

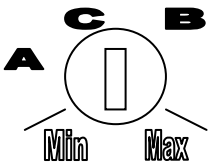
1. Align the transmitter and the receiver to their correct positions without the object it has to detect. Both LEDs on the receiver should be ON.
2. Press and hold the teach button on the receiver for 3 seconds until both LEDs are flashing.
3. Place the object you need to detect in between the transmitter and the receiver.
4. Press the teach button once. Now the sensor is adjusted. The yellow LED turns OFF when an object is detected.

QS18 DIFFUSE REFLECTIVE



Should be ON

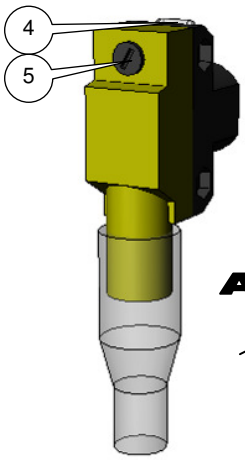
ON while detecting



Follow below procedure to adjust the sensor:

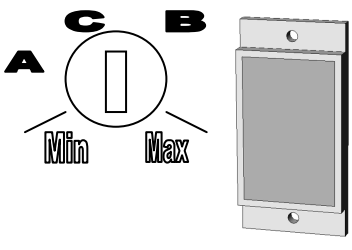
- Align the sensor to its correct position without the object it has to detect. The green LED (4) should be ON.
- Turn the potentiometer (5) clockwise until the yellow LED goes ON (B).
- Place the object you need to detect in front of the photo switch, yellow LED should remain ON.
- Turn the potentiometer counter clock wise until the yellow LED goes OFF (A).
- Set the potentiometer in between A and B position (C). Now the sensor is adjusted. The yellow LED turns ON when an object is detected.

QS18 RETRO REFLECTIVE



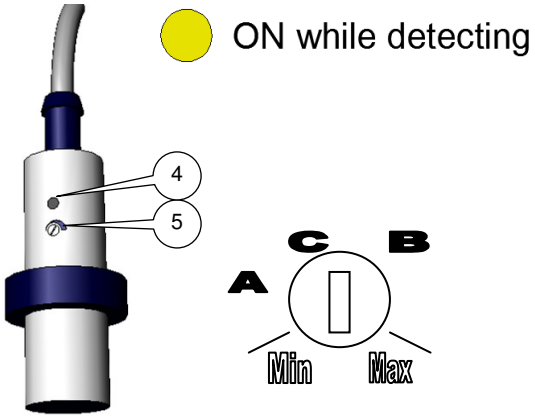
Should be ON

OFF while detecting



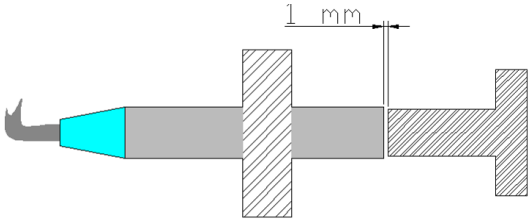
Follow below procedure to adjust the sensor:

- Align the sensor and the reflector to their correct positions without the object it has to detect. The green and the yellow LED (4) should be ON.
- Turn the potentiometer (5) counter clockwise until the yellow LED goes OFF (A).
- Place the object you need to detect in between the sensor and the reflector, yellow LED should remain OFF.
- Turn the potentiometer clock wise until the yellow LED goes ON (B).
- Set the potentiometer in between A and B position (C). Now the sensor is adjusted. The yellow LED turns OFF when an object is detected.



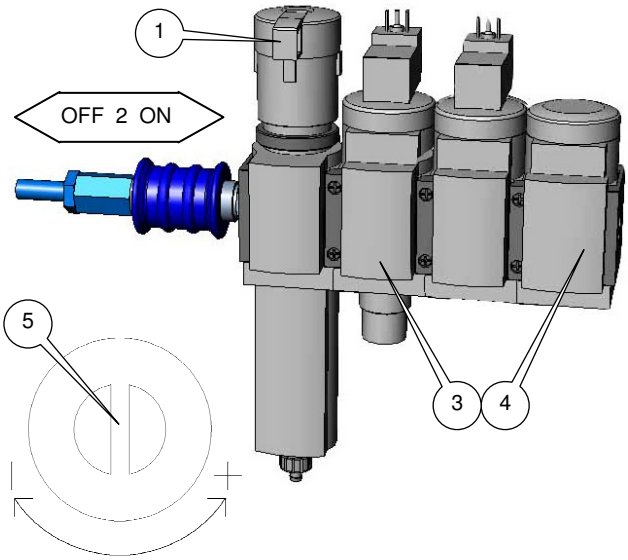
PA18 DIFFUSE REFLECTIVE

Follow below procedure to adjust the sensor:
- Align the sensor to its correct position without the object it has to detect. The LED (4) should be OFF.
- Turn the potentiometer (5) clockwise until the LED goes ON (B).
- Place the object you need to detect in front of the photo switch, LED should remain ON.
- Turn the potentiometer counter clock wise until the LED goes OFF (A).
- Set the potentiometer in between A and B position (C). Now the sensor is adjusted. The LED turns ON when an object is detected.



PROXIMITY SWITCHES

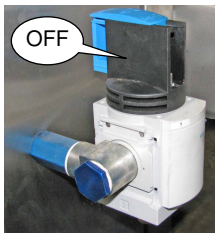
In the Prinzen systems, often Omron inductive sensors are used for controlling the positioning of moving parts.
The distance between the tip of the sensor and the detectable parts must be 1 mm.



AIR PREPARATION

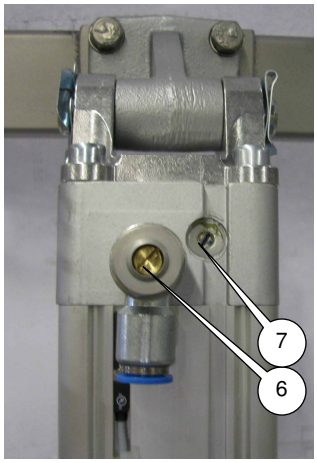
Normally the Prinzen systems need an air pressure of approximately 6 bars (make sure your compressed air supply is between 8 and 10 bars). Adjust this air pressure with the air pressure regulator. Pull the knob (1) up and turn it to change the air pressure. Press the knob down to lock it again.
On the air pressure regulator a manual ON/OFF switch (2) is positioned. See alongside pictures for the ON and the OFF positions. Switch the air supply OFF during maintenance activities.
Next to the electrical start-up valve (3) an optional soft starter (4) may be present. It slowly builds up the air pressure towards the air cylinders after resetting the system to prevent unexpected fast movements of air cylinders.
The speed of the pressure built up is adjustable with the set screw (5) on the topside of the soft starter.

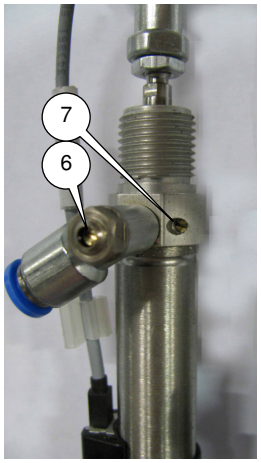
TIP!
When the soft starter cannot build up the pressure, there may be an air leak somewhere in the system.



SPEED CYLINDERS

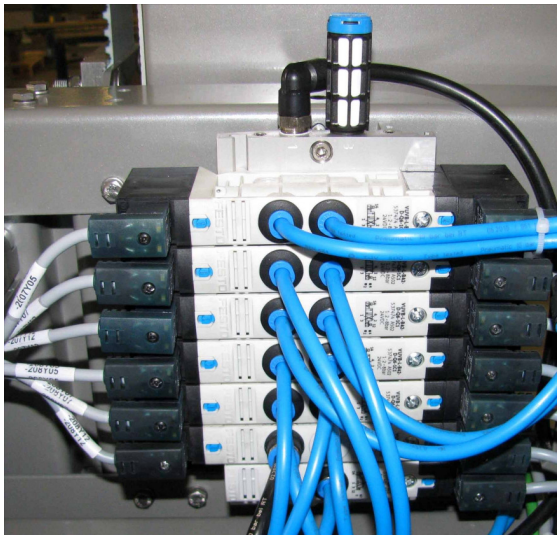
Some movements are controlled by air-cylinders. These cylinders have speed restrictors (6) to adjust the speed of the ingoing and outgoing stroke of the cylinder. Normally the speed is adjusted with the outgoing air.
When adjusting these speeds it should not influence the cycle time of the complete system but the cylinder movements should be smooth and gentle.





CYLINDER AIR CUSHIONING

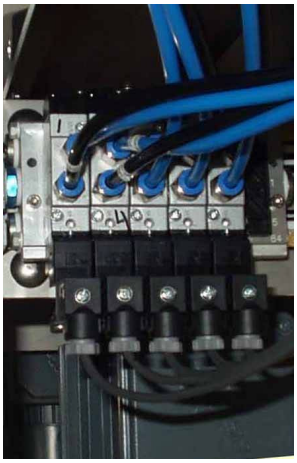
The movement of the piston rod of an air cylinder is stopped by an air cushion (7) on both sides of the cylinder. The air cushion absorbs the piston rod movement. The air of this cushion is released through the air cushioning screw. By adjusting this screw it is possible to stop the piston rod movement in a smooth and gentle way. A correct adjustment of this air cushioning extends the life span of the air cylinders.
Adjust this screw in such a way that the air in the cushion is released slowly and the piston rod is stopped gently.

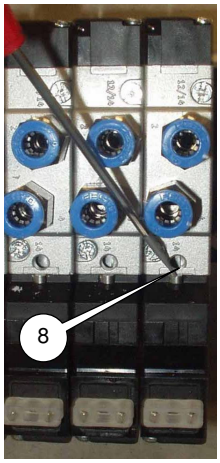


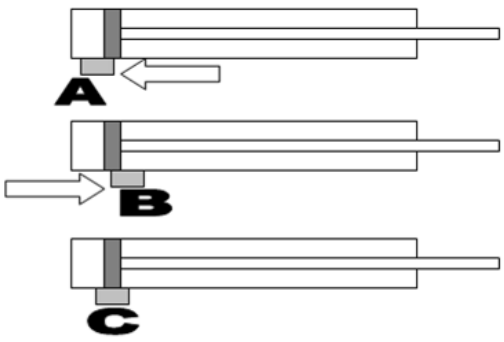
VALVES

In the system valves are positioned to control the air cylinders.
Manual activation of these valves (controlling the cylinders) is possible by pressing on the manual-activating pin (8).

	**CAUTION!** Before manually activating valves, make sure no persons are in danger. Air cylinders immediately start to move.
	**ATTENTION!** When valves are manually activated, parts of the system immediately start to move. This may result in collision of parts which may damage the system.







REED SWITCH ON A CYLINDER

When sensors are present on the cylinder to detect the piston position, these sensors should be adjusted properly. When only 1 sensor is used it is important to know if the ingoing or outgoing stroke of the piston rod has to be detected. Below the general adjustment instruction for the sensors on the air cylinders is stated:

- Loosen up the connection of the sensor to the cylinder.
- Move the sensor to the outside of the cylinder until the sensor goes OFF (A).
- Move the sensor to the centre of the cylinder until the sensor goes OFF (B).
- Move the sensor to the position in between position A and B (C).
- Fasten the sensor again at position C.

FREQUENCY INVERTERS

ATTENTION!
The parameters of the frequency inverters are factory set. We advise you to consult Prinzen before changing these parameters.

CAUTION!
Before manually controlling frequency inverters, make sure no persons are in danger. Motors immediately start to move.

ATTENTION!
When frequency inverters are manually controlled, parts of the system immediately start to move. This may result in collision of parts which may damage the system.

TIP!
After a frequency inverter has been controlled manually, the system may have lost its sequence and a reboot of the system may be necessary (power OFF and power ON).

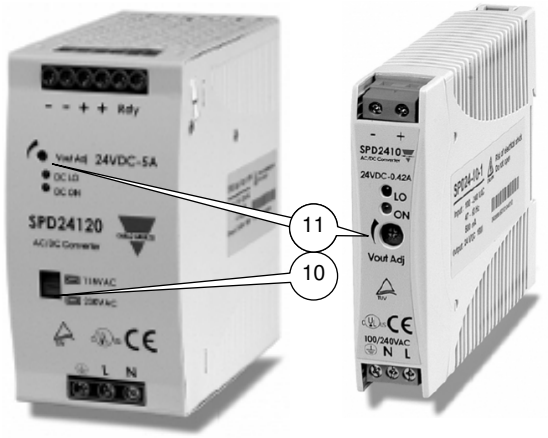
TIP!
See the OMRON V1000 User manual for details about this frequency inverter.

Changing parameter values:
Follow below procedure to change parameters values:

- Press the up (1) or down (2) button until PAr is visualized on the display.
- Press the enter key (3) to display the parameters.
- Use the Reset button (4) to select a parameter digit. Repeat this step and next step until the parameter you want to view is displayed.
- Press the up (1) or down arrows (2) to change the parameter digit. Repeat this step and previous step until the parameter you want to view is displayed.
- Press the enter key (3) to display the parameter value.
- Use the Reset button (4) to select a parameter digit. Repeat this step and next step until the parameter value is changed.
- Press the up (1) or down (2) button to change the parameter digit. Repeat this step and previous step until the parameter is completely changed.
- Confirm the change with the enter key (3).
- Press the escape key (5) until the DRV LED (6) is ON and F..,.. is visible on the display.

Manually controlling the inverter:
In some situations it is easy to be able to run one of the motors by directly controlling it with its frequency inverter.
Follow below procedure to manually control the inverter:

- Make sure the system is stopped and no trays or eggs are on the part of the system that you want to control manually.
- Set the inverter in the local controlled mode by pressing the LO/RE button (7) until the LED inside this button turns ON.
- Press the RUN button (8) to start the inverter. The connected motor starts running now.
- Press the STOP button (9) to stop the motor.
- Set the inverter back in the remote controlled mode by pressing the LO/RE button (7) until the LED inside this button turns OFF.

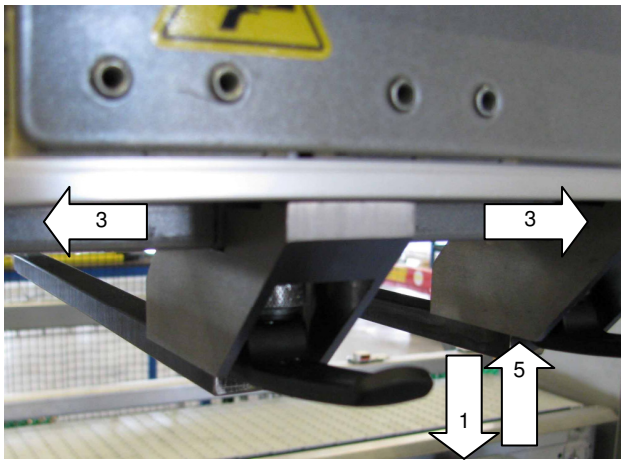


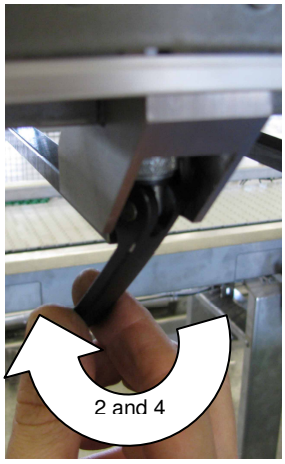
POWER SUPPLIES

The power supply switch (10) must always be set to 230 Vac, even when your local power supply has a different voltage.
The power supplies are factory set. Do not change this setting (11).

ATTENTION!
The power supplies are factory set. Do not change the power supply switch and do not change setting of the potentiometer.

OPERATION ADJUSTMENTS

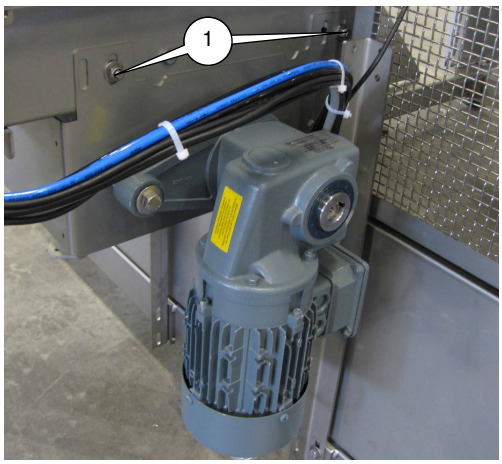


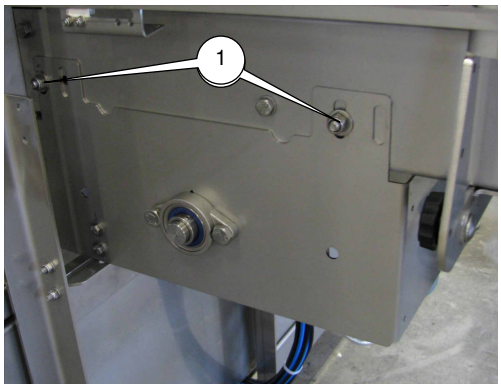


FORK POSITIONS

The positions of the forks are individually adjustable. Adjust the positions of the forks in such a way that they are able to insert underneath the 4 stacks at the pick-up position and are able to lift the stacks up without tilting them sideways.
When carton dividers are used, normally per layer the stack orientation changes. On the 1st, the 3rd and the 5th layer, the stacks are placed unturned. On the 2nd and the 4th layer, the stacks are turned 90°. For the 2nd and the 4th layer, the forks are shifted sideways.
Is this the case in your system, make sure your forks are on the correct position for picking op stacks which are not turned and stacks which are turned 90°.
Follow below procedure to change a fork position:

1. Pull the lever down.
2. Loosen up the lever by turning it.
3. Move the fork (left or right) to the correct position.
4. Tighten up the lever by turning it.
5. Push the lever up to lock the fork again.
6. Repeat the above for all the forks.
7. After adjustment, make sure the forks are able to pick-up the stacks from the infeed conveyor and place them on the pallet without damaging stacks or eggs.



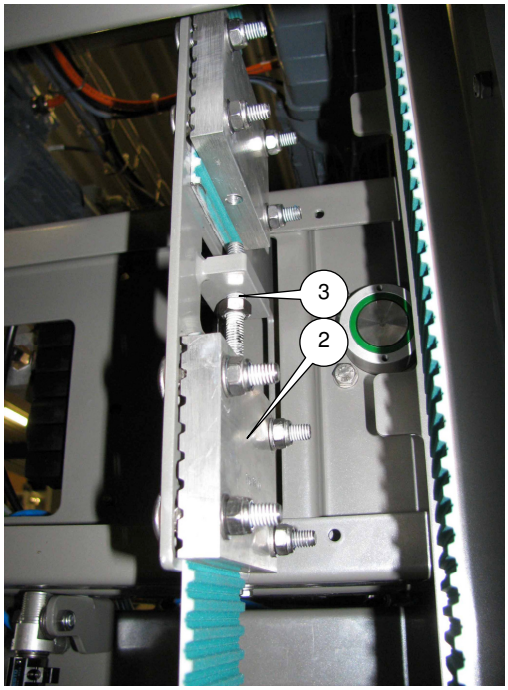


ADJUSTMENTS

TRANSPORT BELT TENSION

The complete drive is attached to the transport belt with 4 bolts (2 on each side of the belt). Loosen up these 4 bolts (1). For more belt tension lower the complete drive. When the belt tension is correct, first make sure the complete drive is leveled and after that tighten up the 4 bolts again.

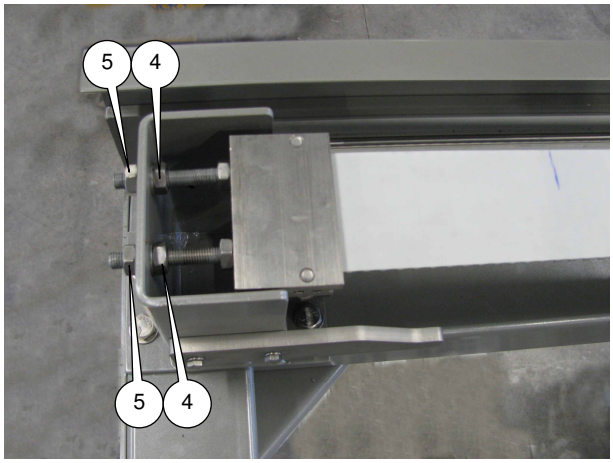
ATTENTION!
Be careful with adjusting the belt tension. A too high tension will result in wear on the belt, the gearwheels and the bearings.



TIMING BELT TENSION FORK SUPPORT

The upwards and downward movement of the fork support is controlled by a timing belt. Adjust the tension of this timing belt in such a way that when both sides of the timing belt are pressed together, a small gap remains between the belt sides.
To adjust the tension, first loosen up the lock nuts (2) of the bottom tensioner. Adjust with the tensioning bolt (3). Tighten up the lock nuts after adjustment.

ATTENTION!
A too high belt tension may result in wear on the belt, pulleys and bearings.

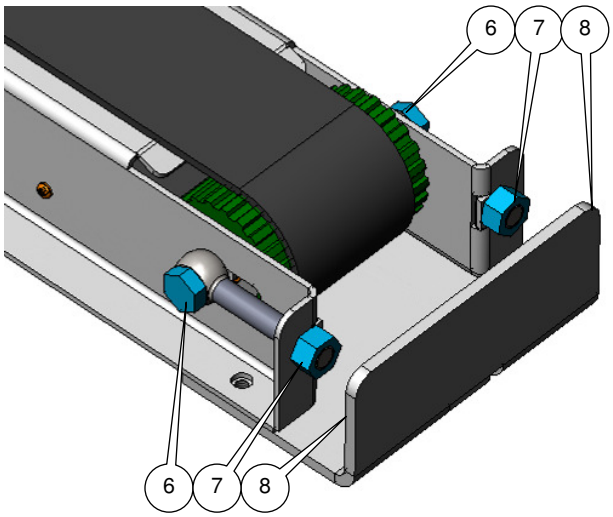


TIMING BELT TENSION FORK CARRIER

The forwards and backwards movement of the fork carrier is controlled by a timing belt.

For more tension first loosen up nuts 4 and then tighten up nuts 5. Tighten up nuts 4 after adjustment.
For less tension first loosen up nuts 5 and then tighten up nuts 4.

ATTENTION!
A too high belt tension may result in wear on the belt, pulleys and bearings.



TRANSPORT CONVEYOR TIMING BELT TENSION

On the outfeed side of the transport conveyor it is possible to adjust the tension of the 3 timing belts.
To adjust a timing belt first loosen up the lock bolts (6) on both sides of the pulley and adjust the tension with the adjustment nuts (7).
Turn the nuts clockwise for more tension and counter clockwise for less tension.
Tighten up the lock bolts after adjusting.
Make the same adjustment on both sides of the timing belt! The distance between the lock bolt and the end of the conveyor (8) must be the same on both sides of the timing belt

ATTENTION!
A too high belt tension may result in wear on the belt, pulleys and bearings.

8. SPARE PARTS

LIST WITH RECOMMENDED SPARE PARTS

Part number	Recommended	Description
3107001016	2	Fork
5702300190	2	Filter mat EFMP200
6200600024	1	Proximity switch SME-8-K-LED-24
6200700039	1	Valve VUVB-L-B42-D-Q6-1C1
6201400003	4	Vacuum generator VN-05-H-T3-PQ2
6400700001	4	Suction cup
8001100036	1	Frequency inverter V1000
8001300004	1	DC power supply 24V/5A
8001300017	1	DC power supply 5V/1A
8001500340	1	Battery PLC CR2477N 3V
8001600014	1	Sensor proximity E2A-M12LS04WP-B1
8001600070	1	Sensor through-beam PD30CNT15PMU sender
8001600071	1	Sensor through-beam PD30CNT15PPRT receiver
8001600157	1	Sensor diffuse reflective PD30CNB15PP3335
8001600158	1	Sensor retro reflective PD30CNP06PP3335

9. TROUBLE SHOOTING GUIDE

GENERAL

Only professionals who are familiar with the installation and its operation may remedying breakdowns.

Immediately consult the Service Department of Prinzen if any problems occur, or questions arise during remedying breakdowns.

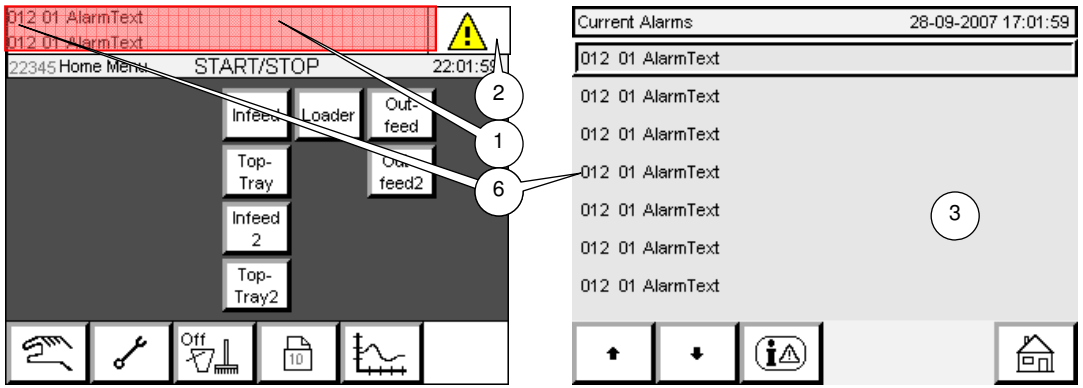
SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

HARDWARE TROUBLE SHOOTING

TIP!
For all electrical failures, first check the circuit breakers, motor protection switches and fuses!

When the system was not able to finish a certain movement within the allowed time given for this movement an alarm message appears on the upper line in the touchpanel (1). By touching the alarm button (2), the alarm screen appears (3) displaying the current alarm messages. The below table shows the possible specific alarms that may pop-up. In the table, beside the alarm, the alarm code, the possible cause and an action to solve the error are described.
When an alarm pops up, use its alarm code (6) to find the corresponding cause and action in the below table.



Code		Alarm text	Cause	Action
		System Alarms:		
000	00	Acknowledge all	Internal B&R touchpanel system error.	Contact Prinzen.
000	01	Bypassed all	Internal B&R touchpanel system error.	Contact Prinzen.
000	02	System Init	Internal B&R touchpanel system error.	Contact Prinzen.
000	03	Alarm Printout Restarted	Internal B&R touchpanel system error.	Contact Prinzen.
000	04	Printer Not Ready	Internal B&R touchpanel system error.	Contact Prinzen.
000	05	Cannot Read Alarm Data	Internal B&R touchpanel system error.	Contact Prinzen.
000	06	Printer Buffer Overflow	Internal B&R touchpanel system error.	Contact Prinzen.
000	07	Battery Discharged	Battery exhausted.	Contact Prinzen. Do not turn off main power.

Code		Alarm text	Cause	Action
		[002] Line_Alarms Group		
002	00	Alarm Line: emergency stop activated	Emergency stop button is or has been pressed or main power has been turned off.	1) First check and solve(if needed) the cause of the emergency stop. 2) Make sure no persons are in danger before restarting the system! 3) Restart the system by pulling out the emergency stop button(s) and then push the reset button on the panel to reset the emergency stop(All emergency buttons of the whole line has to be pulled out and all the machines of the whole line has to be powered on) (NOTE: after a power on it will take about 30 seconds extra(after the panel has been start up) before the safety plc is in run and therefor the alarm can be resetted, please take this time into account). If after following the above instructions the alarm can NOT be resetted, contact Prinzen (See also: “1 Safety” of this manual)
002	01	Alarm Line: SafePlc module not ready	SafePlc is starting up(normally within 2 minutes after power on) or wiring problem in the safety circuit	Contact Prinzen if after 2 minutes after power on the alarm is still present (See also: “1 Safety” of this manual)
002	02	Alarm Line: frequency inverter	There is a problem with one of the frequency inverter	Check the message on the frequency inverter(PLO-MAIN+42U03..47U03) and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
		[005] Line_Messages Group		
005	00	Message Line: CPU temperature too high	Temperature PLC processor too high	Contact Prinzen
005	01	Message Line: PLC temperature too high	Surrounding temperature PLC too high	Contact Prinzen
005	02	Message Line: battery empty	Memory backup battery empty	Contact Prinzen. Do NOT switch off the system.
005	03	Message Line: emergency stop button extern pressed	An external emergency stop button is pressed (see external machines)	Step1) First check and solve(if needed) the cause of the emergency stop. Step2) Make sure no persons are in danger before restarting the system! Step3) Restart the system by pulling out the emergency stop button(s) and then push the blue reset button on the panel to reset the emergency stop(All emergency buttons of the whole line has to be pulled out and all the machines of the whole line has to be powered on) (NOTE: after a power on it will take about 30 seconds extra(after the panel has been start up) before the safety plc is in run and therefor the alarm can be resetted, please take this time into account). If after following the above instructions the alarm can still NOT be resetted, contact Prinzen (See also: “1 Safety” of this manual)

Code		Alarm text	Cause	Action
005	04	Message Line: emergency stop button panel is pressed	The panel emergency stop button is pressed	Step1) First check and solve(if needed) the cause of the emergency stop. Step2) Make sure no persons are in danger before restarting the system! Step3) Restart the system by pulling out the emergency stop button(s) and then push the blue reset button on the panel to reset the emergency stop(All emergency buttons of the whole line has to be pulled out and all the machines of the whole line has to be powered on) (NOTE: after a power on it will take about 30 seconds extra(after the panel has been start up) before the safety plc is in run and therefor the alarm can be resetted, please take this time into account). If after following the above instructions the alarm can still NOT be resetted, contact Prinzen (See also: "1 Safety" of this manual)
005	05	Message Line: emergency stop button toptray is pressed	A toptray emergency stop button is pressed	Step1) First check and solve(if needed) the cause of the emergency stop. Step2) Make sure no persons are in danger before restarting the system! Step3) Restart the system by pulling out the emergency stop button(s) and then push the blue reset button on the panel to reset the emergency stop(All emergency buttons of the whole line has to be pulled out and all the machines of the whole line has to be powered on) (NOTE: after a power on it will take about 30 seconds extra(after the panel has been start up) before the safety plc is in run and therefor the alarm can be resetted, please take this time into account). If after following the above instructions the alarm can still NOT be resetted, contact Prinzen (See also: "1 Safety" of this manual)
005	06	Message Line: emergency stop button loader is pressed	The loader emergency stop button is pressed	Step1) First check and solve(if needed) the cause of the emergency stop. Step2) Make sure no persons are in danger before restarting the system! Step3) Restart the system by pulling out the emergency stop button(s) and then push the blue reset button on the panel to reset the emergency stop(All emergency buttons of the whole line has to be pulled out and all the machines of the whole line has to be powered on) (NOTE: after a power on it will take about 30 seconds extra(after the panel has been start up) before the safety plc is in run and therefor the alarm can be resetted, please take this time into account). If after following the above instructions the alarm can still NOT be resetted, contact Prinzen (See also: "1 Safety" of this manual)
005	07	Message Line: Password equal	By changing a password an equal password was typed	Change the changed password
005	20	Message Line: {Service_Description1}	A Prinzen or own defined service message has appeared	Read the message
005	21	Message Line: {Service_Description2}	A Prinzen or own defined service message has appeared	Read the message
005	22	Message Line: {Service_Description3}	A Prinzen or own defined service message has appeared	Read the message
005	23	Message Line: {Service_Description4}	A Prinzen or own defined service message has appeared	Read the message

Code		Alarm text	Cause	Action
005	24	Message Line: {Service_Description5}	A Prinzen or own defined service message has appeared	Read the message
005	25	Message Line: {Service_Description6}	A Prinzen or own defined service message has appeared	Read the message
		[006] Line_Network_Message Group		
006	04	Message line network: set IP address incorrect	An error occurred during saving the network IP address	Contact Prinzen
006	05	Message line network: set netmask incorrect	An error occurred during saving the network subnet mask	Contact Prinzen
006	06	Message line network: set gateway incorrect	An error occurred during saving the network gateway address	Contact Prinzen.
006	07	Message line network: get IP adress incorrect	An error occurred during reading the network IP address	Contact Prinzen.
006	08	Message line network: get netmask incorrect	An error occurred during reading the network subnet mask	Contact Prinzen
006	09	Message line network: get gateway incorrect	An error occurred during reading the network gateway address	Contact Prinzen
006	10	Message line network: get node number incorrect	An error occurred during reading the node number of the PLC	Contact Prinzen
		[122] M12_TopTray1_Alarms Group		
122	00	Alarm TopTray: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
122	01	Alarm TopTray: safety	Machine safety is activated(for example safety screen is or has been interrupted or door is or has been opened, etc.)	Step1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed), but make sure no persons are in danger). Step2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can still NOT be resetted, contact Prinzen (See also: “1 Safety” of this manual)
122	02	Alarm TopTray: frequency controller	There is a problem with the denester gripper frequency inverter	Check the message on the frequency inverter (PLO+TTI-44U03) and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
122	05	Alarm TopTray: maximum retries denester reached	Bad trays or no trays present or denester mechanically not correct adjusted	Check the trays or fill the denester with trays if its empty or adjust the denester mechanically (note: press emergency stop and put power off by adjusting the denester)
122	06	Alarm TopTray: timeout, denester grippermotor runs too long	Proximity stop sensor not detected or gripper denester motor runs too heavy or has been stuck	If proximity stop sensor(PLO-TT1+84B07) loose, adjust and tighten it. If gripper runs heavy or stuck, try to find out why
122	07	Alarm TopTray: timeout, denester tray proximity switch pushercylinder	The pushercylinder of the denester of the toptray has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT1+84B10/84B14) is broken or loose, or cylinder has been reduced to much
122	08	Alarm TopTray: timeout, proximity switch centercylinders	The centercylinder has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT1+85B10/85B14) is broken or loose, or cylinder has been reduced to much
122	09	Alarm TopTray: timeout, proximity switch rotate cylinder	The rotatecylinder has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT1+85B03/85B07) is broken or loose, or cylinder has been reduced to much
122	10	Alarm TopTray: stack too low	- (1)Stack in TopTray is less then 6 trays high; - (2)Sensor loose/broken or not well placed.	- (1)Stacker has been emptied, so a stack lower then 6 trays high can be placed on infeed stacker conveyor, else if not emptied, check stacker, or somebody has placed a low stack for the TopTray; - (2)Check sensors(PLO-TT1+83FC03 and 83FC07).
		[125] M12_TopTray1_Messages Group		

Code		Alarm text	Cause	Action
125	00	Message TopTray1: denester (almost) empty	No empty trays or only a few trays present in denester	Fill denester with empty trays(PLO-TT1+84FC03)
		[132] M13_TopTray2_Alarms Group		
132	00	Alarm TopTray2: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
132	01	Alarm TopTray2: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	Step1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed), but make sure no persons are in danger). Step2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can still NOT be resetted, contact Prinzen (See also: “1 Safety” of this manual)
132	02	Alarm TopTray2: frequency controller	There is a problem with the denester gripper frequency inverter	Check the message on the frequency inverter (PLO+TT2-44U03) and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
132	05	Alarm TopTray2: maximum retries denester reached	Bad trays or no trays present or denester mechanically not correct adjusted	Check the trays or fill the denester with trays if its empty or adjust the denester mechanically (note: press emergency stop and put power off by adjusting the denester)
132	06	Alarm TopTray2: timeout, denester grippermotor runs too long	Proximity stop sensor not detected or gripper denester motor runs too heavy or has been stuck	If proximity stop sensor(PLO-TT2+84B07) loose, adjust and tighten it. If gripper runs heavy or stuck, try to find out why
132	07	Alarm TopTray2: timeout, denester tray proximity switch pushercylinder	The pushercylinder of the denester of the toptray has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT2+84B10/84B14) is broken or loose, or cylinder has been reduced to much
132	08	Alarm TopTray2: timeout, proximity switch centercylinders	The centercylinder has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT2+85B10/85B14) is broken or loose, or cylinder has been reduced to much
132	09	Alarm TopTray2: timeout, proximity switch rotate cylinder	The rotatecylinder has not reached its end point sensor within a certain time	Check if cylinder is not mechanical blocked, or end sensor(PLO-TT2+85B03/85B07) is broken or loose, or cylinder has been reduced to much
132	10	Alarm TopTray2: stack too low	- (1)Stack in TopTray is less then 6 trays high; - (2)Sensor loose/broken or not well placed.	- (1)Stacker has been emptied, so a stack lower then 6 trays high can be placed on infeed stacker conveyor, else if not emptied, check stacker, or somebody has placed a low stack for the TopTray; - (2)Check sensors(PLO-TT2+83FC03 and 83FC07).
		[135] M13_TopTray2_Messages Group		
135	00	Message TopTray2: denester (almost) empty	No empty trays or only a few trays present in denester	Fill denester with empty trays(PLO-TT1+84FC03)
		[142] M14_Infeed1_Alarms Group		
142	00	Alarm Infeed: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.

Code		Alarm text	Cause	Action
142	01	Alarm Infeed: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed), but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen (See also: "1 Safety" of this manual)
142	05	Alarm Infeed: timeout, infeed conveyor runs too long	- (1)Stack is stuck on infeed conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; - (3)Check sensors on infeed conveyor(PLO-MAIN+90FC03..90FC17).
142	06	Alarm Infeed: timeout, buffer conveyor runs too long	- (1)Stack is stuck on buffer conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on buffer conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)If lowest tray is empty or not complete full, remove all stacks on the buffer conveyor and startup again; - (3)Check sensors on buffer conveyor(PLO-MAIN+91FC03/91FC08).
142	07	Alarm Infeed: timeout, stack conveyor runs too long	- (1)Stack is stuck on stack conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on stack conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)Check sensors on stack conveyor(PLO-MAIN+91FC11); - (3)If lowest tray is empty or not complete full, remove all stacks on the stack conveyor and startup again.
142	08	Alarm Infeed: stack too low on buffer conveyor	- (1)Stack at end buffer conveyor is less then 6 trays high; - (2)Sensor loose/broken or not well placed.	- (1)Stacker has been emptied, so a stack lower then 6 trays high can be placed on infeed stacker conveyor, else if not emptied, check stacker, or somebody has placed a low stack for the TopTray; - (2)Check sensors(PLO-MAIN+90FC03/91FC03).
142	09	Alarm Infeed: 5 stacks detected on infeed conveyor	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; -(3)Check sensors on infeed and buffer conveyors (PLO-MAIN+90FC03..91FC08).
142	10	Alarm Infeed: too quickly a stack at end of buffer conveyor detected	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)Check sensors on infeed and buffer conveyors(PLO-MAIN+90FC03..91FC08).
142	11	Alarm Infeed: row on end infeed conveyor, but fourth stack not present	- (1)A stack was placed by hand on infeed conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; -(3)Check sensors on infeed conveyors(PLO-MAIN+90FC03..90FC17).
142	12	Alarm Infeed: stack at end and begin infeed conveyor	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)Check sensors on infeed and buffer conveyors (PLO-MAIN+90FC03..91FC08).
		[145] M14_Infeed1_Messages Group		
125	00	Message infeed: weigh calibration factor not within zone	-The loadcells on the infeedconveyor are not yet correctly calibrated	Goto Panel(Machine Settings => press infeed or infeed2 => press calibration => check calibration factor(~0,427)).

Code		Alarm text	Cause	Action
		[152] M15_Infeed2_Alarms Group		
152	00	Alarm Infeed2: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
152	01	Alarm Infeed2: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	Step1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed), but make sure no persons are in danger). Step2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen (See also: “1 Safety” of this manual)
152	05	Alarm Infeed2: timeout, infeed conveyor runs too long	- (1)Stack is stuck on infeed conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; - (3)Check sensors on infeed conveyor(PLO-MAIN+90FC03..90FC17).
152	06	Alarm Infeed2: timeout, buffer conveyor runs too long	- (1)Stack is stuck on buffer conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on buffer conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)If lowest tray is empty or not complete full, remove all stacks on the buffer conveyor and startup again; - (3)Check sensors on buffer conveyor(PLO-MAIN+91FC03/91FC08).
152	07	Alarm Infeed2: timeout, stack conveyor runs too long	- (1)Stack is stuck on stack conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on stack conveyor is loose/broken or not adjusted well.	- (1)Release the stucked stack, and start up again; - (2)Check sensors on stack conveyor(PLO-MAIN+91FC11); - (3)If lowest tray is empty or not complete full, remove all stacks on the stack conveyor and startup again.
152	08	Alarm Infeed2: stack too low on buffer conveyor	- (1)Stack at end buffer conveyor is less then 6 trays high; - (2)Sensor loose/broken or not well placed.	- (1)Stacker has been emptied, so a stack lower then 6 trays high can be placed on infeed stacker conveyor, else if not emptied, check stacker, or somebody has placed a low stack for the TopTray; - (2)Check sensors(PLO-MAIN+90FC03/91FC03).
152	09	Alarm Infeed2: 5 stacks detected on infeed conveyor	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; -(3)Check sensors on infeed and buffer conveyors (PLO-MAIN+90FC03..91FC08).
152	10	Alarm Infeed2: too quickly a stack at end of buffer conveyor detected	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)Check sensors on infeed and buffer conveyors (PLO-MAIN+90FC03..91FC08).
152	11	Alarm Infeed2: row on end infeed conveyor, but fourth stack not present	- (1)A stack was placed by hand on infeed conveyor; - (2)The lowest tray of a stack is empty or not complete full; - (3)Sensor on infeed conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)If lowest tray is empty or not complete full, remove all stacks on the infeed conveyor and startup again; -(3)Check sensors on infeed conveyors(PLO-MAIN+90FC03..90FC17)..
152	12	Alarm Infeed2: stack at end and begin infeed conveyor	- (1)A stack was placed by hand on infeed or buffer conveyor; - (2)Sensor on infeed/buffer conveyor is loose/broken or not adjusted well.	-(1)Remove the stack and startup again; -(2)Check sensors on infeed and buffer conveyors (PLO-MAIN+90FC03..91FC08).
		[155] M15_Infeed2_Messages Group		

Code		Alarm text	Cause	Action
155	00	Message infeed2: weigh calibration factor not within zone	-The loadcells on the infeedconveyor are not yet correctly calibrated	Goto Panel(Machine Settings => press infeed or infeed2 => press calibration => check calibration factor(~0,427)).
		[162] M16_Loader_Alarms Group		
162	00	Alarm Loader: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
162	01	Alarm Loader: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen. (See also: “1 Safety” of this manual)
162	05	Alarm Loader: horizontal servo not on right position	Horizontal servo movement has stopped to early, it has not reached its absoluut movement position, because: - (1)another alarm occurred; - (2)mechanical blockage; - (3)servo has an error	- (1)Check for other alarms and/or messages; - (2)Check machine for mechanical blockage; - (3)Check servo by Panel(Service => Machine Settings => I/O List => Loader => press[->] till screen 4164).
162	06	Alarm Loader: vertical servo not on right position	Vertical servo movement has stopped to early, it has not reached its absoluut movement position, because: - (1)another alarm occurred; - (2)mechanical blockage; - (3)servo has an error	- (1)Check for other alarms and/or messages; - (2)Check machine for mechanical blockage; - (3)Check servo by Panel(Service => Machine Settings => I/O List => Loader => press[->] till screen 4165).
162	07	Alarm Loader: horizontal servo runs too long	-Loader speed is set to low; -Mechanical blockage.	- Check if speed has not been changed on the Panel(Service => Machine Settings => Loader => Speeds); - Check machine for mechanical blockage;
162	08	Alarm Loader: vertical servo runs too long	-Loader speed is set to low; -Mechanical blockage.	- Check if speed has not been changed on the Panel => Service => Machine Settings => Loader => Speeds); - Check machine for mechanical blockage;

Code		Alarm text	Cause	Action
162	09	Alarm Loader: horizontal servo limit switch active (hardware and/or software	- (1)Recipe servo settings not correct (only if alarm occurred in auto mode and a new recipe selected or actual recept has been changed); - (2)General servo settings changed; - (3)Servo not homed and servo manually moved a long distance; - (4)Pushed by hand in servo limit switch; - (5)Moved manually in servo limit switch; - (6)Wiring problem hardware limit switch;	- (1)Only if alarm occurred in auto mode and a new recipe has been selected, check recipe settings: Panel(Recipe => Change actual recipe => Loader); Then move the servo manually or by hand out again; - (2)Only if alarm occurred in auto mode and the general servo settings have been changed, check general software limit switch settings: Panel(Service => Machine Settings => loader => General servo settings => Software limit switch) Then move the servo manually or by hand out of the limit switch again; - (3)If servo not homed and manually moved => first move the servo manually or by hand out again, then a new start of the loader will automatically home the servo's; - (4)If pushed by hand in servo limit switch, then move the servo manually or by hand out again. - (5)If moved manually in servo limit switch, then move the servo manually or by hand out again; - (6)If wiring problem hardware limit switch(PLO-SUB+43B06/43B08) then check wiring and/or contact Prinzen; If the cause is detected and solved, the loader can be resetted by pressing the reset button and then it is ready to start up again.
162	10	Alarm Loader: vertical servo limit switch active (hardware and/or software)	- (1)Recipe servo settings not correct (only if alarm occurred in auto mode and a new recipe selected or actual recept has been changed); - (2)General servo settings changed; - (3)Servo not homed and servo manually moved a long distance; - (4)Moved manually in servo limit switch; - (5)Wiring problem hardware limit switch;	- (1)Only if alarm occurred in auto mode and a new recipe has been selected, check recipe settings => recipe => Change actual recipe => loader; Then move the servo manually or by hand out again; - (2)Only if alarm occurred in auto mode and the general servo settings have been changed, check general software limit switch settings:Panel(Service => Machine Settings => loader => General servo settings => Software limit switch) Then move the servo manually or by hand out again; - (3)If servo not homed and manually moved => first move the servo manually or by hand out again, then a new start of the loader will automatically home the servo's; - (4)If moved manually in servo limit switch then move the servo manually or by hand out again; - (5)If wiring problem hardware limit switch(PLO-SUB+46B06/46B08) then check wiring and/or contact Prinzen; If the cause is detected and solved, the loader can be resetted by pressing the reset button and then it is ready to start up again.
162	11	Alarm Loader: error horizontal servo axle	Horizontal servo drive has an error	-Check servo by Panel(Service => Machine Settings => I/O List => Loader => press[->] till screen 4164); -Contact Prinzen.
162	12	Alarm Loader: error vertical servo axle	Vertical servo drive has an error	-Check servo by Panel(Service => Machine Settings => I/O List => Loader => press[->] till screen 4165); -Contact Prinzen.

Code		Alarm text	Cause	Action
162	13	Alarm Loader: horizontal servo axle runs and vertical axle not up on homing sensor	Vertical homing sensor loose or not well positioned	Check vertical homing sensor if it is well positioned(PLO+SUB-46B10)
162	14	Alarm Loader: vertical and horizontal servo axles runs simultanuously	Software fault	Contact Prinzen
162	15	Alarm Loader: spare horizontal servo		Contact Prinzen
162	16	Alarm Loader: spare vertical servo		Contact Prinzen
162	17	Alarm Loader: vertical servo is up and a trigger sensor is active	A trigger sensor is not well positioned, loose or broken or something covers it	Check the trigger sensors(PLO-BRI+85FC06/10/14, 86FC10, 87B03). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks)
162	18	Alarm Loader: trigger touch row/divider active but not within active layer zone	The triggertouch sensor has been interrupted to early and not within the active layer zone. This can happen if: - (1)something has interrupted the trigger touch sensor or it is not well positioned/ loose or broken - (2)the layer zones has been changed	- (1)Check the trigger sensors(PLO-BRI+85FC06/10/14, 86FC10, 87B03). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks) - (2)Check the layer zones: Panel(Service => Machine Settings => Loader)
162	19	Alarm Loader: safetylatch vertical lift not in	-(1)Too little air pressure; -(2)Reedcontact not well positioned, loose or broken.	-(1)Check air pressure(see manometer); -(2)Check reedcontact(PLO-BRI+84B14).
162	20	Alarm Loader: safety collision switch vertical lift activated	-Loader head has been vertical lift up, while it is collided; -Sensor not well positioned, loose, or broken.	-Check the situation, what happened and call Prinzen; -Check if sensor(PLO-BRI+84B10) is positioned and functioned correctly.
162	21	Alarm Loader: more then one state	Software fault	Contact Prinzen
162	22	Alarm Loader: wrong row sequence detected during scanning	- (1)The pallet has been feeded in on the outfeed position incorrectly(wrong direction) - (2)A trigger sensor is not well positioned, loose or broken or something covers it	- (1)Feed pallet out, turn pallet 180 degrees and feeded in again; - (2)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks)
162	23	Alarm Loader: scanned layer is higher then maximum layer defined in the recipe	- (1)Pallet infeeded with tomany layers stacked; - (2)Layer settings not correct; - (3)Recipe number of layer not correct; - (4)Wrong recipe chosen. - (5)something has interrupted the trigger touch sensor or it is not well positioned, loose or broken	- (1)Feed pallet out; - (2)Change layer settings => Service => Machine Settings => Loader => General Servo Settings; - (3)Change recipe settings: Panel(Recipe => Change actual recipe => Outfeed => Layer); - (4)Change recipe. - (5)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen : Panel(Manual => Loader => Forks)
162	24	Alarm Loader: divider placed but not all rows detected	By placing the divider not all rows beneath it has been detected: - (1)Empty trays detected on row(Trigger sensor looking through) - (2)Trigger sensors broken;	- (1) Check rows if no empty trays are present on the row; - (2)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks)
162	25	Alarm Loader: servo movement not allowed, because little safety screen is interrupted(check palletstock, dividerstock and outfeedpositions)	- (1)Palletstock, dividerstock and outfeedpositions are NOT well positioned. - (2)Little safetyscreen not well positioned	- (1)Check(and reposition if needed) pallet on palletstock, dividerstock or outfeedpositions; - (2) Check(and reposition if needed) the safetyscreen(PLO-BRI+84FC03).

Code		Alarm text	Cause	Action
162	26	Alarm Loader: pallet lost or stuck at head(remove pallet from head manually)	A pallet has fallen out of head by picking or transporting it, or could not be lost by placing, cause: - (1)a bad pallet was picked; - (2)The middle trigger sensor is not well positioned, loose or broken	- (1)Check the state of the pallet and also the pallets in the palletstock; - (2)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks) NOTE! This alarm can NOT be resetten directly, because to be sure the lost pallet has been taken out of the machine and to release the machine that no pallet is placed in the head. The procedure is: Manual => loader => Gripper/Venturi =>Press ”Open gripper”, but only if you are sure no pallet is in the head or may fall down. If a pallet is in the head, move the pallet in the head manually on the palletstock: Panel(Manual => Loader => Servo)
162	28	Alarm Loader: palletstock is full, remove pallet manually	- (1)The palletstock is filled with to many pallets; - (2)Recipe value palletstock full is wrong;	- (1)Take one or more pallets from palletstock; - (2)Change recipe: Panel(Recipe => Change actual recipe => Loader => Palletstock => “Pallet stock full”)
162	29	Alarm Loader: wrong divider in head, replace/remove divider manually	Recipe change executed with a divider on head	Replace/Remove divider manually. Manual => Loader => Gripper/Venturi
162	30	Alarm Loader: timeout, reedcontact pallet gripper cylinder	Timeout => movement of cylinder takes to long(detected by sensor(s) on end of cylinder) or both sensors are on, cause: -Mechanical Blockage; -Reedcontact sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+84B03/07)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	31	Alarm Loader: timeout, reedcontact divider gripper cylinder	Timeout => movement of cylinder takes to long(detected by sensor(s) on end of cylinder), cause: -Mechanical Blockage; -Reedcontact end sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+86B03/07)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)

Code		Alarm text	Cause	Action
162	32	Alarm Loader: timeout, reedcontact fork in/out cylinder	Timeout => movement of cylinder takes to long(detected by sensor(s) on end of cylinder), cause: -Mechanical Blockage; -Reedcontact end sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+82B10/14)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	33	Alarm Loader: timeout, reedcontact forksideshift cylinder	Timeout => movement of cylinder takes to long(detected by sensor(s) on end of cylinder), cause: -Mechanical Blockage; -Reedcontact end sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+83B03/07)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	34	Alarm Loader: timeout, reedcontact forkflip cylinder	Timeout => movement of cylinder takes to long(detected by sensor(s) on end of cylinder), cause: -Mechanical Blockage; -Reedcontact end sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+82B03/07)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	35	Alarm Loader: If something is picked manually(pallet, divider, row), then it should be placed back or removed out of head	Manually something is picked and not replaced/removed out of head again. Reason is that manually it is not clear if for example a row is present on the forks or that only the forks are out(no sensor present who detects a row on head).	Replace/Remove loader head manually: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	36	Alarm Loader: trigger touch pallet active but not within outfeedposition placezone	The triggertouch sensor has been interrupted to early and not within the first layer zone. This can happen if: - (1)something has interrupted the trigger touch sensor or it is not well positioned/ loose or broken - (2)the first layer zone has been changed(unlikely!)	- (1)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks) - (2)Check the layer zones: Panel(Service => Machine Settings => Loader)
162	37	Alarm Loader: wrong machine settings	One or more machine settings are not correct(not within zone)	Check machine settings: Panel(Service => Machine Settings => Loader) Contact Prinzen.
162	38	Alarm Loader: wrong recipe settings	One or more Recipe settings are not correct(not within zone)	Check recipe settings: Panel(Recipe => Change recipe settings => Loader) Contact Prinzen.

Code		Alarm text	Cause	Action
162	39	Alarm Loader: divider lost or not placed by head(remove manually)	A plastic divider has fallen out of the head by picking or transporting it, or could not be lost by placing, cause: - (1)a bad divider was picked; - (2)Gripper not well positioned; - (3)The trigger sensor is not well positioned, loose or broken	- (1)Check the state of the divider and also the dividersin the dividerstock; - (2)Adjust gripper; - (3)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks) NOTE! This alarm can NOT be resetten directly, because to be sure the lost divider has been taken out of the machine and to release the machine that no divider is placed in the head. The procedure is: Panel(Manual => loader => Gripper/Venturi =>Press ”Open gripper”) but only if you are sure no divider is in the head or may fall down. If a pallet is in the head, move the pallet in the head manually on the palletstock: Panel(Manual => Loader => Servo)
162	40	Alarm Loader: divider lost or not placed by head(remove manually)	A carton divider has fallen out of the head by picking or transporting it, or could not be lost by placing, cause: - (1)a bad divider was picked; - (2)Venturi not well positioned or to little vacuum or recipe settings not correct(”Height after picking carton” and ”Time standing still” because second divider picked also) - (3)The middle trigger sensor is not well positioned, loose or broken	- (1)Check the state of the divider and also the dividersin the dividerstock; - (2)Adjust venture frame or suction cups or change actual recipe(”Height after picking carton” and ”Time standing still”. Panel(Recipe => Change actual recipe => Loader => divider stock); - (3)Check the trigger sensors(PLO-BRI+85FC06..85FC14). The trigger sensors has to be put on to activate them, this can be done in the manual loader screen: Panel(Manual => Loader => Forks) NOTE! This alarm can NOT be resetten directly, because to be sure the lost pallet has been taken out of the machine and to release the machine that no pallet is placed in the head. The procedure is: Panel(Manual => loader => Gripper/Venturi =>Press ”Open gripper”), but only if you are sure no pallet is in the head. If a pallet is in the head, move the pallet in the head manually on the palletstock: Panel(Manual => Loader => Servo)
162	41	Alarm Loader: timeout, reedcontact venturi frame cylinder	Timeout => movement of cylinder takes too long(detected by sensor(s) on end of cylinder), cause: -Mechanical Blockage; -Reedcontact end sensor(s) not well positioned, loose or broken; -No air pressure; -Valve broken.	Check: -For mechanical blockage, and solve if needed the blockage; -Reedcontact (=sensor on end of cylinder(PLO-BRI+83B10/14)) if well positioned, loose or (both)broken; -Air pressure(see manometer); -Valve. Use if the situation makes it possible(without danger) the manual control to test the cylinder: Panel(Manual => Loader => Forks or Gripper/Venturi or Servo)
162	42	Alarm Loader: servo direction not good, put machine totally off and start up again	Hardware wiring not placed or loose	Check wiring
		[165] M16_Loader_Messages Group		

Code		Alarm text	Cause	Action
165	00	Message Loader: lag horizontal servo	Servo runs with a lag(means it can not follow its calculated position), cause: - (1)Mechanical blockage; - (2)Drive broken / wiring error; - (3)Drive settings changed(unlikely!).	- (1)Check machine for mechanical blockage; - (2)Check servo by Panel (Service => Machine Settings => I/O List => Loader => press[->] till screen 4164); - (3)Contact Prinzen.
165	01	Message Loader: lag vertical servo	Servo runs with a lag(means it can not follow its calculated position), cause: - (1)Mechanical blockage; - (2)Drive broken / wiring error; - (3)Drive settings changed(unlikely!).	- (1)Check machine for mechanical blockage; - (2)Check servo by Panel(Service => Machine Settings => I/O List => Loader => press[->] till screen 4165); - (3)Contact Prinzen.
165	02	Message Loader: safetyscreen pallet- and dividerstock	Safety plc => safetyscreen pallet- and dividerstock not resetted	1)First solve(if needed) the cause of the safety interruption (check if safety screen is not interrupted, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen.
165	03	Message Loader: safetyscreen horizontal servo movement allowed interrupted	- (1)Palletstock, dividerstock and outfeedpositions are NOT well positioned. - (2)Little safetyscreen not well positioned	- (1)Check(and reposition if needed) pallet on palletstock, dividerstock or outfeedpositions; - (2)Check(and reposition if needed) the safetyscreen(PLO-BRI+84FC03).
165	04	Message Loader: dividerstock 1 is empty	- (1)Dividerstock 1 is empty; - (2)If not empty, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can fill the dividerstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If dividerstock is not empty change the recipe settings: Panel(Recipe=> Change actual recipe => divider stock).
165	05	Message Loader: dividerstock 2 is empty	- (1)Dividerstock 2 is empty; - (2)If not empty, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can fill the dividerstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If dividerstock is not empty change the recipe settings: Panel(Recipe=> Change actual recipe => divider stock).
165	06	Message Loader: palletstock 1 is empty	- (1)Palletstock 1 is empty; - (2)If not empty, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can fill the palletstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If palletstock is not empty change the recipe settings: Panel(Recipe=> Change actual recipe => palletstock).
165	07	Message Loader: palletstock 2 is empty	- (1)Palletstock 2 is empty; - (2)If not empty, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can fill the palletstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If palletstock is not empty change the recipe settings: Panel(Recipe=> Change actual recipe => palletstock).
165	08	Message Loader: palletstock 1 is full	- (1)Palletstock 1 is full; - (2)If not full, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can unfill the palletstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If palletstock is not full change the recipe settings: Panel(Recipe=> Change actual recipe => palletstock).
165	09	Message Loader: palletstock 2 is full	- (1)Palletstock 2 is full; - (2)If not full, the recipe settings are NOT correct.	- (1)Wait till loader is stopped, then you can unfill the palletstock. Pressing the stop button ones, the loader will stop cyclic; - (2)If palletstock is not full change the recipe settings: Panel(Recipe=> Change actual recipe => palletstock).
165	10	Message Loader: timeout, too long in choise main program (check sitiuation)	The loader head can NOT execute a task	-Check for other alarms/messages -Check the situation(for example row on head and pallet not present at outfeed=impossible) and change the situation if needed.

Code		Alarm text	Cause	Action
165	11	Message Loader: recipenumber can NOT be changed, because loader runs	Loader runs and present on panel change recipe page	Stop the loader by pressing the stop button. When stopped(loader not in auto) the recipe can be changed, but be sure the infeed(s) is empty
165	12	Message Loader: try to scan an outfeed position, but pallet in loaderhead and palletstock full(replace/remove pallet manually out of loaderhead)	-(1)Pallet in head, but can Not be placed back in palletstock, because it is full. -(2)If not full, the recipe settings are incorrect	-(1)Empty palletstock with one or more pallets, or empty head manually. Panel(Manual => Loader => Gripper/Venturi and/or Servo); -(2) Change recipe settings: Panel(Recipe => Change actual recipe => Palletstock)
165	13	Message Loader: Trying to pick a pallet out of palletstock but head not free(free loaderhead manually)	In normal process this may not happen! Only if the process is interrupted by feeding a pallet out the outfeed position and a new one back in again, it is possible that the loader has something picked and can not execute a new task	Make the loaderhead free manually: Panel(Manual => Loader => Forks and/or Grippers/Venturi and/or Servo)
165	14	Message Loader: Trying to place a divider pallet on pallet stock but head not free (free loaderhead manually)	In normal process this may not happen! Only if the process is interrupted by feeding a pallet out the outfeed position and a new one back in again, it is possible that the loader has something picked and can not execute a new task	Make the loaderhead free manually: Panel(Manual => Loader => Forks and/or Grippers/Venturi and/or Servo)
165	15	Message Loader: Trying to pick a divider but pallet gripped in head (free loaderhead manually)	In normal process this may not happen! Only if the process is interrupted by feeding a pallet out the outfeed position and a new one back in again, it is possible that the loader has something picked and can not execute a new task	Make the loaderhead free manually: Panel(Manual => Loader => Grippers/Venturi and/or Servo)
165	16	Message Loader: outfeed1 is empty	If outfeedposition has no automatic outfeed, this message will appear if a scan detects that the outfeedposition is empty	Stop the loader by pressing the stop button. When stopped(loader not in auto) a pallet can be filled by hand on the outfeedposition.
165	17	Message Loader: outfeed2 is empty	If outfeedposition has no automatic outfeed, this message will appear if a scan detects that the outfeedposition is empty	Stop the loader by pressing the stop button. When stopped(loader not in auto) a pallet can be filled by hand on the outfeedposition.
165	18	Message Loader: outfeed3 is empty	If outfeedposition has no automatic outfeed, this message will appear if a scan detects that the outfeedposition is empty	Stop the loader by pressing the stop button. When stopped(loader not in auto) a pallet can be filled by hand on the outfeedposition.
165	19	Message Loader: outfeed4 is empty	If outfeedposition has no automatic outfeed, this message will appear if a scan detects that the outfeedposition is empty	Stop the loader by pressing the stop button. When stopped(loader not in auto) a pallet can be filled by hand on the outfeedposition.
165	20	Message Loader: outfeed1 is full	If outfeedposition has no automatic outfeed, this message will appear if the outfeedposition is full	Stop the loader by pressing the stop button. When stopped(loader not in auto) the pallet can be taken by hand from the outfeedposition.
165	21	Message Loader: outfeed2 is full	If outfeedposition has no automatic outfeed, this message will appear if the outfeedposition is full	Stop the loader by pressing the stop button. When stopped(loader not in auto) the pallet can be taken by hand from the outfeedposition.
165	22	Message Loader: outfeed3 is full	If outfeedposition has no automatic outfeed, this message will appear if the outfeedposition is full	Stop the loader by pressing the stop button. When stopped(loader not in auto) the pallet can be taken by hand from the outfeedposition.
165	23	Message Loader: outfeed4 is full	If outfeedposition has no automatic outfeed, this message will appear if the outfeedposition is full	Stop the loader by pressing the stop button. When stopped(loader not in auto) the pallet can be taken by hand from the outfeedposition.
165	24	Message Loader: remove divider from loaderhead manually	In normal process this may not happen! Only if the process is interrupted by feeding a pallet out the outfeed position and a new one back in again, it is possible that the loader has something picked and can not execute a new task	Make the loaderhead free manually: Panel(Manual => Loader => Forks and/or Grippers/Venturi and/or Servo)
165	25	Message Loader: fork is not out!	Trying to move manually the venturiframe down, but the fork is not out	Move manually the forks out
165	26	Message Loader: venturi frame is not up!	Trying to move manually the forks in, but the venturiframe is not up	Move manually the venturiframe up
165	27	Message Loader: check sensor diPxTriggerServoVenturiFrame_On	Venturiframe trigger sensor is not well positioned, loose or broken	Check venturiframe trigger sensor(PLO-BRI+87B03).

Code		Alarm text	Cause	Action
		[172] M17_Outfeed1_Alarms Group		
172	00	Alarm Outfeed: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
172	01	Alarm Outfeed: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen.
172	02	Alarm Outfeed: frequency inverter	There is a problem with one of the frequency inverter	Check the message on the frequency inverter(PLO-MAIN+46U03 optional Main2)) and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
172	05	Alarm Outfeed: timeout, outfeed conveyor(s) runs too long	- (1)Pallet is stuck on outfeed conveyor; - (2)Sensor on last outfeedconveyor position not well positioned, loose or broken or belt is not well adjusted	- (1)Release the stucked stack, and start up again; - (2)Check sensors and belt on last outfeed conveyor.
172	06	Alarm Outfeed: timeout, muting too long enabled	- (1)Pallet is stuck on outfeed conveyor; - (2)Pallet has stopped in safetyscreen/muting photocells;	- (1)Release the stucked stack, and start up again; - (2)Move the pallet manually out: Panel(Manual => Outfeed => “Feed pallet out”)
		[175] M17_Outfeed1_Messages Group		
175	00	Message Outfeed: pallet can be picked from last outfeed conveyor	Pallet is placed on last position, ready to pick up	Pick outfeeded pallet from last outfeed position
175	01	Message Outfeed: safetyscreen "muting" interrupted	Safety plc has not activated the muting safety screen. Muting lamp is off.	1)First solve(if needed) the cause of the safety interruption (safety screen is not interrupted, but make sure no persons are in danger). 2)The alarm can be resetten by pressing the nearest blue reset button. Muting lamp will turn green if successfully resetted If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen. (See also: “1 Safety” of this manual)
175	02	Message Outfeed: yellow muting lamp broken	Muting lamp is broken	Change muting lamp(PLO-MAIN+101H03).
175	03	Message Outfeed: yellow muting lamp on	Muting is active (muting lamp is yellow)	(PLO-MAIN+101H03)
175	04	Message Outfeed: taken pallet is not confirmed	Orange lamp flashes if pallet is picked up(sensor has come free)	Only press this button if pallet is completely moved away from outfeed(=last position on outfeed is completely free) (PLO-MAIN+102SH03).
		[182] M18_Outfeed2_Alarms Group		
182	00	Alarm Outfeed: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
182	01	Alarm Outfeed: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen.

Code		Alarm text	Cause	Action
182	02	Alarm Outfeed: frequency inverter	There is a problem with one of the frequency inverter	Check the message on the frequency inverter(PLO-MAIN+47U03(optional main2)) and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
182	05	Alarm Outfeed: timeout, outfeed conveyor(s) runs too long	- (1)Pallet is stuck on outfeed conveyor; - (2)Sensor on last outfeedconveyor position not well positioned, loose or broken or belt is not well adjusted	- (1)Release the stucked stack, and start up again; - (2)Check sensors and belt on last outfeed conveyor.
182	06	Alarm Outfeed: timeout, muting too long enabled	- (1)Pallet is stuck on outfeed conveyor; - (2)Pallet has stopped in safetyscreen/muting photocells;	- (1)Release the stucked stack, and start up again; - (2)Move the pallet manually out: Panel(Manual => Outfeed => “Feed pallet out”)
		[185] M18_Outfeed2_Messages Group		
185	00	Message Outfeed: pallet can be picked from last outfeed conveyor	Pallet is placed on last position, ready to pick up	Pick outfeeded pallet from last outfeed position
185	01	Message Outfeed: safetyscreen "muting" interrupted	Safety plc has not activated the muting safety screen. Muting lamp is off.	1)First solve(if needed) the cause of the safety interruption (safety screen is not interrupted, but make sure no persons are in danger). 2)The alarm can be resetten by pressing the nearest blue reset button. Muting lamp will turn green if successfully resetted If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen. (See also: “1 Safety” of this manual)
185	02	Message Outfeed: yellow muting lamp broken	Muting lamp is broken	Change muting lamp(PLO-MAIN+111H03).
185	03	Message Outfeed: yellow muting lamp on	Muting is active (muting lamp is yellow)	(PLO-MAIN+111H03)
185	04	Message Outfeed: taken pallet is not confirmed	Orange lamp flashes if pallet is picked up(sensor has come free)	Only press this button if pallet is completely moved away from outfeed(=last position on outfeed is completely free) (PLO-MAIN+112SH03).
		[192] M19_Outfeed3_Alarms Group		
192	00	Alarm Outfeed: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
192	01	Alarm Outfeed: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen.
192	02	Alarm Outfeed: frequency inverter	There is a problem with one of the frequency inverter	Check the message on the frequency inverter and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
192	05	Alarm Outfeed: timeout, outfeed conveyor(s) runs too long	- (1)Pallet is stuck on outfeed conveyor; - (2)Sensor on last outfeedconveyor position not well positioned, loose or broken or belt is not well adjusted	- (1)Release the stucked stack, and start up again; - (2)Check sensors and belt on last outfeed conveyor.
192	06	Alarm Outfeed: timeout, muting too long enabled	- (1)Pallet is stuck on outfeed conveyor; - (2)Pallet has stopped in safetyscreen/muting photocells;	- (1)Release the stucked stack, and start up again; - (2)Move the pallet manually out: Panel(Manual => Outfeed => “Feed pallet out”)

Code		Alarm text	Cause	Action
		[195] M19_Outfeed3_Messages Group		
195	00	Message Outfeed: pallet can be picked from last outfeed conveyor	Pallet is placed on last position, ready to pick up	Pick outfeeded pallet from last outfeed position
195	01	Message Outfeed: safetyscreen "muting" interrupted	Safety plc has not activated the muting safety screen. Muting lamp is off.	1)First solve(if needed) the cause of the safety interruption (safety screen is not interrupted, but make sure no persons are in danger). 2)The alarm can be resetten by pressing the nearest blue reset button. Muting lamp will turn green if successfully resetted If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen. (See also: “1 Safety” of this manual)
195	02	Message Outfeed: yellow muting lamp broken	Muting lamp is broken	Change muting lamp
195	03	Message Outfeed: yellow muting lamp on	Muting is active (muting lamp is yellow)	
195	04	Message Outfeed: taken pallet is not confirmed	Orange lamp flashes if pallet is picked up(sensor has come free)	Only press this button if pallet is completely moved away from outfeed(=last position on outfeed is completely free)
		[202] M20_Outfeed4_Alarms Group		
202	00	Alarm Outfeed: mode timeout, end auto	Stop button has been pressed ones, but could not finish its stop sequence	- Check for other alarms or messages; - Check machine for mechanical blockage.
202	01	Alarm Outfeed: safety	Machine safety is activated (for example safety screen is or has been interrupted or door is or has been opened, etc.)	1)First solve(if needed) the cause of the safety interruption (for example check if safety screen is not interrupted or the door is closed, but make sure no persons are in danger). 2) The alarm can be resetten by pressing the nearest blue reset button If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen.
202	02	Alarm Outfeed: frequency inverter	There is a problem with one of the frequency inverter	Check the message on the frequency inverter and read the manual of the frequency inverter for more details. (See also: “6 ADJUSTMENTS=> Frequency Inverter”)
202	05	Alarm Outfeed: timeout, outfeed conveyor(s) runs too long	- (1)Pallet is stuck on outfeed conveyor; - (2)Sensor on last outfeedconveyor position not well positioned, loose or broken or belt is not well adjusted	- (1)Release the stucked stack, and start up again; - (2)Check sensors and belt on last outfeed conveyor.
202	06	Alarm Outfeed: timeout, muting too long enabled	- (1)Pallet is stuck on outfeed conveyor; - (2)Pallet has stopped in safetyscreen/muting photocells;	- (1)Release the stucked stack, and start up again; - (2)Move the pallet manually out: Panel(Manual => Outfeed => “Feed pallet out”)
		[205] M20_Outfeed4_Messages Group		
205	00	Message Outfeed: pallet can be picked from last outfeed conveyor	Pallet is placed on last position, ready to pick up	Pick outfeeded pallet from last outfeed position

Code		Alarm text	Cause	Action
205	01	Message Outfeed: safetyscreen "muting" interrupted	Safety plc has not activated the muting safety screen. Muting lamp is off.	1)First solve(if needed) the cause of the safety interruption (safety screen is not interrupted, but make sure no persons are in danger). 2)The alarm can be resetten by pressing the nearest blue reset button. Muting lamp will turn green if successfully resetted If still (after following the above instructions) the alarm can NOT be resetted, contact Prinzen. (See also: “1 Safety” of this manual)
205	02	Message Outfeed: yellow muting lamp broken	Muting lamp is broken	Change muting lamp
205	03	Message Outfeed: yellow muting lamp on	Muting is active (muting lamp is yellow)	
205	04	Message Outfeed: taken pallet is not confirmed	Orange lamp flashes if pallet is picked up(sensor has come free)	Only press this button if pallet is completely moved away from outfeed(=last position on outfeed is completely free)